THE AMERICAN ARCHITECT
The ARCHITECTURAL REVIEW

VOL. CXXI WEDNESDAY, FEBRUARY 15, 1922 NUMBER 2387

Two Green Elephants
Designed by Arthur Crisp and executed in Faience

THE ARCHITECTURAL LEAGUE OF NEW YORK AND ITS RELATIONS TO CRAFTS AND MANUFACTURES

BY H. VAN BUREN MAGONIGLE, F. A. I. A.

THE Architectural League of New York holds this year the thirty-seventh annual exhibition in the history of the society. The significance of these exhibitions cannot be grasped, without a clear understanding of the structure of the League, the aims it holds, and its relations to the work of other organizations.

Of the three principal architectural societies in New York, the New York Chapter of the American Institute of Architects, in which membership is confined to architects, restricts itself primarily to the sphere of professional practice rather than to an art. The Society of Beaux-Arts Architects, composed of architects who have studied at the *Ecole des Beaux Arts* in Paris, devoted itself originally to the education of the architectural draftsman through the *atelier* system, and now, through a natural offshoot, the Beaux-Arts Institute of Design, has extended its influence by the inclusion in New York, of painting, and sculpture and the arts of design in general.

Eagle surmounting the shaft of the Pottstown, Pa., War Memorial

A. A. Weinman, Sculptor

A fundamental difference of structure distinguishes The Architectural League membership as it is not confined to architects or architectural draftsmen. It is as its name implies and suggests, a league, under architectural leadership, of the arts, professions and crafts contributory to the art of architecture. The membership includes architects, painters, sculptors,

(Copyright, 1922, The Architectural & Building Press, Inc.)

XUM

and designers in all the crafts. It is almost wholly inclusive of the resident membership of the National Sculpture Society and the National Society of Mural Painters; and it has recently established a class of lay members, rigorously selected and invited from among the manufacturers of artistic materials and products.

"A son aise"
Swedish porcelain, by Mrs. George Oakley Totten, Jr.

The formation of this new class is eloquent of the widening horizon of the League and a fuller grasp of one of its useful functions—the *rapprochement* of the architect and the man who makes the things he uses. It marks a step forward. The architect forsakes his chilly isolation and invites the layman into his house. There, in the friendly atmosphere of personal association, of common work for a common end, the architect and the manufacturer begin to know each other, to understand each other, and as always follows, to respect each other.

THE recognition of the possibilities of usefulness of the League has been of slow and gradual growth. Organized originally as a sketch club by a few architects, there were added sculptors, and painters of decoration. The exhibitions at first were almost wholly of architectural drawings. But the group of decorative paintings and sketches grew in importance and interest year by year, and the sculp-

Boy and Dolphin
Swedish Sculpture, by Mrs. George Oakley Totten, Jr.

"Pan"
Swedish Sculpture, by Mrs. George Oakley Totten, Jr.

tors found the League shows to be the best place to exhibit their work, especially the larger pieces which the National Academy of Design does not accept.

During the past seven years the League has awakened to a realization of the fact which many architects, strange to say, are still unwilling or unable to admit, that since architecture is inclusive of every art that ministers to the comfort, convenience and comeliness of life, an architectural exhibition should properly include, not merely drawings and photographs of buildings, but those movable parts of buildings in wood, clay, metal, plaster and fabrics which complete them and make them habitable in the modern sense. These are furniture, lighting fixtures and fireplace fittings, hangings and fabrics of all kinds, carpets, pottery, tilework, leather in screens or bookbindings or as furniture or wall-coverings.

"Amusement"
Panel for a flag pole base by L. Lentelli, Sculptor

Figure of Victory on War Memorial at New Rochelle, N. Y.
Edmond T. Quinn, Sculptor

Therefore the League has adopted the policy of exhibiting, side by side with architecture in drawings, photographs and models, with mural paintings and sculpture, these actual products of the allied crafts, frequently creating an architectural setting in which they might be naturally displayed. The only requirements are that they be works of art and that they be not offered for sale at or during the exhibition.

To encourage the crafts and manufactures and to emphasize the importance they have in the League's vision of the relation to the diverse arts to architecture, and in recognition of the place the machine is beginning to occupy in the production of beautiful things in quantity, a medal and mentions, of rank equal to those for architecture, painting, sculpture and landscape architecture, were established in 1920 and are to be annually awarded.

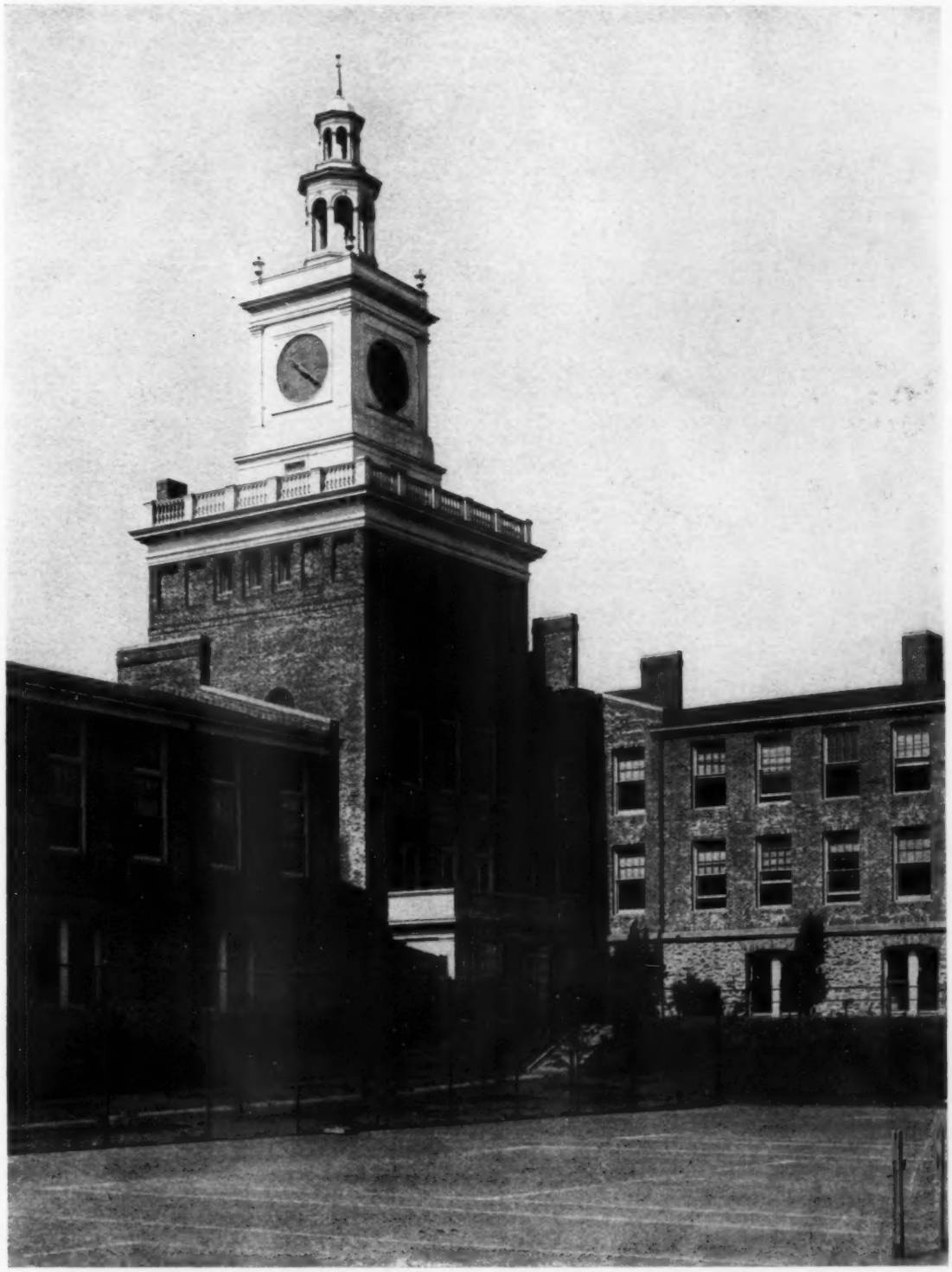
BUT the exhibition is only an annual affair and were this public and formal recognition of the contribution of the craftsman to the art of

XUM

the day all the League attempted to accomplish it would be little more than a polite gesture. It lacks the human touch, the warmth of human, as distinguished from official, relations. And so the League has developed into a club—one of the most interesting clubs in the country; and in thus developing, it has also, curiously enough, reverted to the original purpose of its foundation—artistic fellowship. There were many years in the League's history when this was lost sight of and the annual dinner and exhibition and a sparsely attended and lifeless monthly meeting made up the sum of human contacts.

With the establishment of a club night and dinner once a week, of which one or two in a month are studio nights when the members, under the guidance of experts, amuse themselves with all sorts of media of expression, and once a month a ladies' night, the League membership has grown in four years from 545 to 724 and is quick with extraordinary life and the spirit of fellowship. At a weekly dinner an architect may be seated in a group composed of a mural painter, a sculptor, a worker in metals either as designer or craftsman, a manufacturer of glass or fabrics, a decorator, a pottery or tile or faience expert, a designer and maker of stained glass, a bronze founder. Any one of these men may be a practitioner of some other art. The probabilities are in favor of at least one being an etcher of ability and distinction, that more than one paints well, more than one is a writer and an acknowledged authority upon more than one subject. And in this personal contact, with all its implications of mental exchange, in the friendships which spring up among practitioners of diverse branches of art, is more hope for better craftsmanship and architecture than in many medals. For one thing it enlarges the mind of the architect. And shall we dare to say: It needs enlarging?

Hell Gate Bridge
From the drawing in charcoal by Peter Marcus

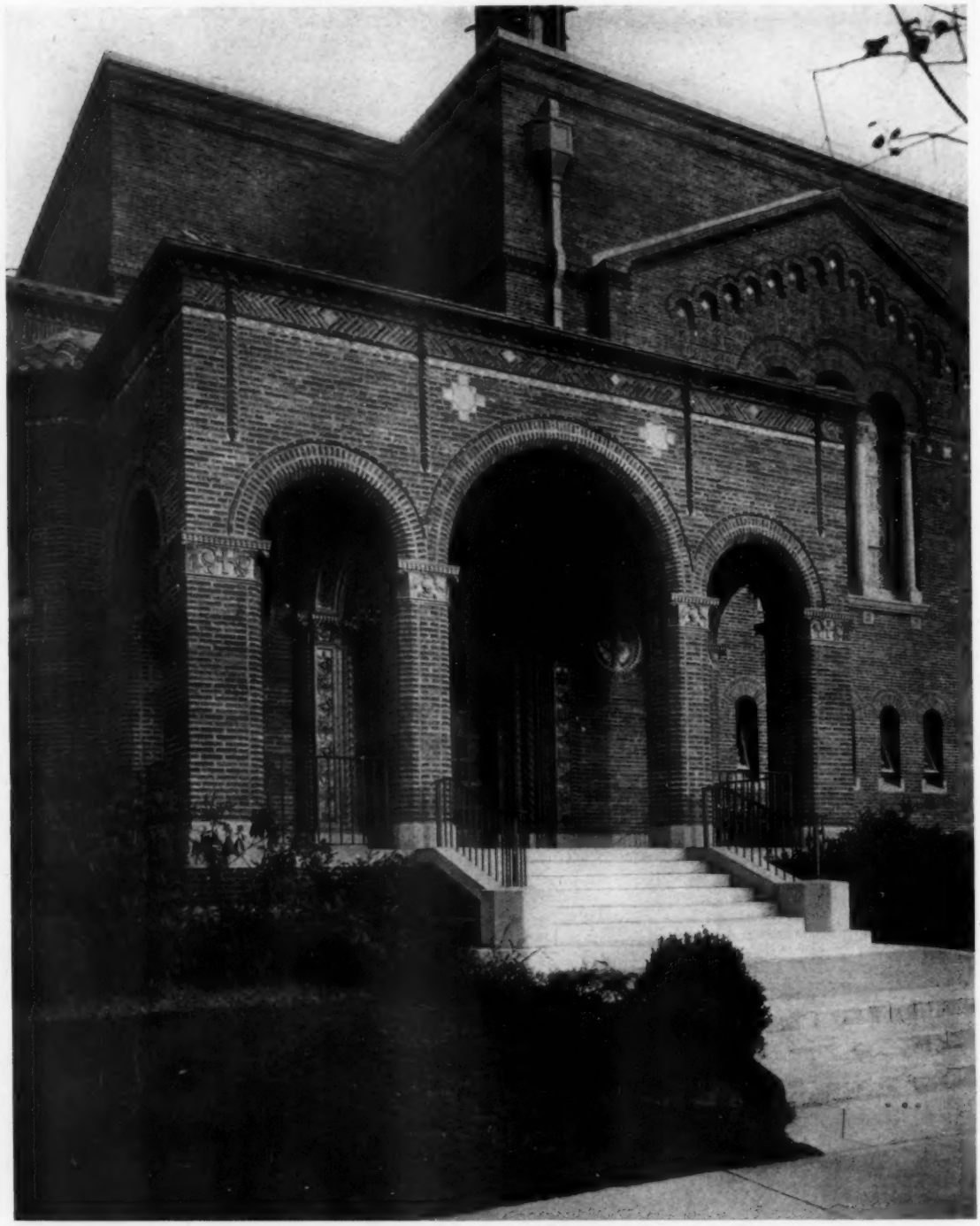


ENTRANCE AND CLOCK TOWER, POLYTECHNIC PREPARATORY COUNTRY DAY SCHOOL, DYKER HEIGHTS, BROOKLYN, N. Y.

LORD & HEWLETT, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM



ENTRANCE PORCH, 1ST M. E. CHURCH, ASBURY PARK, N. J.

LUCIAN E. SMITH AND HARRY E. WARREN, ASSOCIATED ARCHITECTS

BUILT OF ROUGH BRICK AND POLYCHROME TERRA-COTTA IN OLD IVORY, GREEN, BLUE AND GOLD. THE CORNICE HAS COLORED MARBLE INSERTS. THE IRON-WORK IS PAINTED DEEP PLUM COLOR. THE STEPS ARE GRANITE AND LIMESTONE

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

ENTRANCE DOORWAY, 1ST M. E. CHURCH, ASBURY PARK, N. J.

LUCIAN E. SMITH AND HARRY E. WARREN, ASSOCIATED ARCHITECTS

THIS DOORWAY IS OF POLYCHROME TERRA-COTTA IN OLD IVORY, GREEN, BLUE AND YELLOW. THE GRILLE ABOVE THE DOORWAY IS ANTIQUE GOLD IN COLOR. THE DOOR ITSELF, IS OF WEATHERED OAK WITH INCISED CARVINGS ON THE LINTEL

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

THE GOOSE BOY — EMELIO ANGELA, SCULPTOR

(AT LEFT)

VICTORY—SCULPTURED PANEL, CHARLES C. RUMSEY, SCULPTOR
BROWNSVILLE MEMORIAL,—HERTS & ROBINSON, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

THE EXHIBITION OF THE ARCHITECTURAL LEAGUE OF NEW YORK WITH A FOREWORD ON THE DEVELOPMENT OF A BETTER CRAFTSMANSHIP

IT is fortunate that an organization such as The Architectural League of New York realizes the great importance that hinges on the development of craftsmanship in this country. We are insistently being told by certain groups in the profession that architecture is purely an art. But it is also something more. The artistic aspect is, of course, the dominating one. There have at one time or another appeared men in this country who, as designers lead the world. We are sure that these clever men, if questioned, will admit that the only limitation to the heights of good art to which they may soar is the possibility of reproducing in enduring materials the essence of that which their fertile minds create.

New York from the Manhattan Bridge

From the drawing in Charcoal by Peter Marcus

It is absolutely true that the limitation of our artistic architectural development is the limitation of craftsmanship. The development of the art of the craftsman will insure the greater development of the art of architecture.

Every practical thing is founded on some well considered theory. Every good design, whether its medium of final expression is metal, wood, stone or any of the many composite materials, fails of its originality, its cleverness of conception, if it receives its execution at the hands of incompetent craftsmen.

Most of the things that engage the councils of organized architecture are important. We may debate ethics, competitions, practice and procedure, or go academically into the many and complex elements of architectural practice, but we premise first that we are architects, and, to borrow a definition often expressed, that "architecture is the art of beautiful building." To prove that it is, clever draftsmen and fine renderers produce for the clients and for exhibition purposes the most artistically executed motives. That is just how the architect dreams of his completed building. Can he hope today to find his dream come true in all its artistic refinements? Can he expect when he turns over the building to his client that it will represent in its finer details the things he desired to place in it? Does not every architect turn back to his drawings and contemplate with a sigh of regret the fine things he has been compelled to forego because it was hopeless to look for their execution as he designed them. Undoubtedly, architects may hitch their chariots to a star, but their progress will not be upward and onward, but on a dead level of monotony owing to the indifferent quality of craftsmanship in this country.

But the future is brighter than the reader of the preceding lines may imagine, for there are certain influences at work which, if maintained in the future as in the past, will result in a development of a state of craftsmanship in this country and an education in public taste, that will create an artistic revival as important as that of the Italian renaissance.

It is now some seven years since The Architectural League of New York announced its purpose to conduct its exhibitions with a view to the development of good craftsmanship. Each succeeding exhibition, built on the experience and lessons learned, has more insistently accented craftsmanship. The work has been carried for-

XUM

Garden Figure
S. F. Bilotti, Sculptor

ward with intelligence, with painstaking zeal. So well has this association of architects carried forward its ideals that it has secured the co-operation and support of the most progressive manufacturers in this country. The present exhibition is tangible evidence of the great good that is being accomplished. Each exhibition of the League is a milestone on the road to the fulfillment of the highest ideals. These League exhibitions combine in the most dignified way an exposition of what may be attained by an intelligent co-operation of the highest development of art and industry conducted on the basis of the most efficient craftsmanship.

The pity of it is that the great lessons taught may only be benefitted by a comparative few who represent the smallest minority of those who are, or should be, deeply interested. If all our architectural exhibitions would condense their showing to a lesser degree of so-called architectural material, and increase the space in which those who are co-operating by good craftsmanship could demonstrate their work, this movement could be made nation wide. And it is vital that it should be.

We may only dwell briefly on one, and perhaps the greatest, deterrent factor in the retardance of our development in craftsmanship. Organized labor, intent more on wage scales and shorter

Glendale Memorial Tablet
Anton Schaaf

The Vail Medal (reverse)
A. A. Weinman, Sculptor

hours, more insistent on availing of every possible profit to be derived from present conditions, has, many will claim, failed of vision. It has not given its fostering care to the education of those who will later enter its ranks. It has not been insistent as to the competency of those who now engage in work in all the many trades. But the outlook is not hopeless. Great crises produce great men, and we shall hope that present conditions will result in the appearance of a strong personality that will recognize the dignity of labor and how essential it is to increase its efficiency. Trade schools will then become, in the

truest sense, colleges for the highest education of the craftsman, and the apprentice will only be admitted to the ranks of organized labor when he has shown that he has the necessary qualifications to undertake the work he has selected. There are "misfits" in all professions, but the large percentage of misfits in the ranks of labor and in the crafts is the retardant that must be removed.

The Architectural League has so accented these things, not alone by means of its exhibitions, but throughout the year, by a quiet but persistent propaganda that is securing the finest results.

Architects are not the only ones that suffer limitations through poor craftsmanship. Engineers are equally hampered in their work. When we speak of craftsmanship, we do not refer alone to the artist craftsman, but to all those various departments of labor that contribute to the completed structure. Engineers know the handicaps that beset them. It is, therefore, reasonable to hope that the profession of engineering will take up these matters and by either individual effort or co-operation with architects lead the public to a better understanding as to why there is not a better result than is now obtained.

Dining Room, House of Bayard Dominick, Esq., New York City
Wm. F. Dominick, Architect

WHEN it is set down that the present exhibition of The Architectural League of New York is, in completeness and dignity, fully up to its predecessors, there has been written about all that can be said as to its excellence.

Architectural exhibitions have undergone, in the method of their preparation, some very radical changes. The original plan of a grouping of recent work where it might be seen by the profession embraced little, if any, attempt to interest the laity. The progressiveness of the architectural press which sought out and very thoroughly published meritorious work as soon as it was completed, naturally dulled the feature of novelty of exhibitions. Everything that an architectural society might gather as worth while in forming exhibitions was, as a rule, well known to all the profession and lessened the interest of architects in these annual displays. The idea then naturally was developed so to prepare exhibitions of architecture that they would combine all the features of a high class showing of art with a presentation so stripped of its technical aspect that the casual observer would be interested and through such interest become instructed in good architecture and its true

LIBRARY
FEB 21 1922

meaning and value to him and the community in which he lived.

A noticeable feature of the present exhibition of The Architectural League is the elimination of many features of pageantry that have formed such an important part of preceding occasions. This, we feel, is a move in the right direction. The League, during its season, has many opportunities for such relaxations and most artistically avails of them. The real aims of this organization as shown in Mr. Magonigle's article, are what should be the real aims of every architectural organization. No one may with truthfulness assert that this present exhibition does not beautifully and practically carry forward these purposes.

It has always been the policy of this journal to avoid specific reference to the work exhibited at an architectural exhibition, confining what it may have to say to a reference to the whole exhibition. It will not depart from that policy.

Before the outbreak of the War, the domestic architecture of this country presented the best illustration of the development of architecture as an art. Naturally the general retardance of building has worked changes in the character of exhibitions, but it is significant that the wealthy class, which logically is made up of shrewd business men, does not take stock in the pessimistic wailings that are or have been going up all over the country. Many large and expensive houses are shown and in their showing accent the remarkable advance that is being made in our domestic architecture in spite of the War's interruption.

Commercial buildings on which much architectural skill in design has been lavished are today the rule and not the exception. Years ago that shrewd gentleman, the client, who was placing in his factory building some of his hard earned profits, was unwilling to concede a dollar for ornament, insisting it was but an unnecessary, a useless waste of money. Now, owing to the fine education the architect has imparted to him, he begins to realize the commercial value of good architecture, and so proud is he of its possession that he places it on all his stationery and accents it in all his trade literature. There are many good examples of just that sort of thing at the League's exhibition.

Schools and more schools. The school children

(Continued On Page 141)

Detail of interior, House of Charles E. Mitchell, Esq., New York City
Walker & Gillette, Architects

·EDITORIAL·COMMENT·

AS THIS IS WRITTEN THE INVESTIgators, private and official, are busy in their efforts to determine the cause of the collapse of the Knickerbocker Theatre in Washington on the evening of January 28, resulting in the death of upwards of a hundred people. Until their reports are made public, the exact manner in which the structure failed, as well as the particular wall, truss member, column or detail that first gave way, will be conjecture. Perhaps, after the investigations have been finished, there will be disagreement concerning this point, but there is one obvious fact even now, that is,—if we disregard the rather slim possibility that there has been serious though undetected deterioration of the structure or some of its elements since erection,—the building was not built sufficiently strong in all its structural parts to withstand a snow load of some twenty-eight to thirty inches. To know whether the structure was uniformly weak, or whether some detail, some link in the structural chain, was alone responsible for the collapse, will, of course, be of interest and value, but regardless of the verdict, the safety of the public and incidentally the reputation of the architectural profession lies in so designing, detailing and superintending the construction of buildings that the factor of safety that is dictated by good practice actually exists in the finished structure. Too often it has been absorbed by faulty design, unscientific details, or cheap construction.

* * *

THE AMERICAN ARCHITECT HAS FOR years advocated the definite specification. The subject is always opportune. At a recent meeting of The American Specification Institute several members discussed the vexed subject and some good suggestions were made. The best were those advocating the principle of deciding what was wanted and getting it. A general specification followed by "or equal" may be assumed to mean one of two things: either the specification writer feels his inability, through ignorance, to be definite, or, he feels he will be criticized as having been improperly influenced.

The honest man who knows exactly what he wants knows himself above all criticism. It is not by accident he finds himself writing specifications. His clients employ him because of his supposedly special knowledge. His sole duty is to justify his employment. To excuse lack of definiteness on the ground that he might be charged with favoritism is the excuse of the man who is afraid of his client.

Materials are rapidly becoming standardized, but this merely helps the mass. Standardization sets a possible minimum of attainment and marks a step forward in an industry. It does not affect the man whose basic knowledge is sound and fortified by experience. Standardization regarded as finality in a material or a process acts as a bar to further progress. Standardization in methods of manufacture of, and the adoption of standard specifications for testing Portland cement, by no means puts all makes of cement on an equal footing. There always will be manufacturers whose standard is higher than that of a passing mark. To such men in the past credit for improvement after improvement was due until finally all makers adopted a standard that is satisfactory for general work. The makers of better cement, however, employ chemists who are research workers rather than mere controllers of product. Their material possesses a quality which analysis does not show and the brand is the indication of this quality. Standardization of other products, brick, stone, tile, timber, to mention only a few, cannot wholly cover color or texture and the specification writer must definitely select that which meets trade standards, plus what he knows he wants. To the end of time all makers of definitely superior products may confidently expect and have earned the right to demand that their materials be specified by name or brand. Were this not so, all creative evolution would cease.

* * *

IT IS NOT WITH MATERIALS ONLY, but it is with equipment and service supplies that the architect must concern himself. A general specification for equipment will state the object of the installation and call for quality of materials, performance of the completed work and a guarantee. Any one of a dozen or more manufacturers can supply the equipment and a choice must be made. The indefinite specification puts off the choice until the equipment is needed. The definite specification settles the matter before the plans are made public. It implies careful consideration of the subject during the time the whole project is being studied. There can be no question raised as to the advisability of writing a definite specification when the fact is borne in mind that but one article can be used and that some day it must be definitely chosen. To make the choice before writing the specification and hold unswervingly to it has a good effect on the client and leads the better class of manufacturers to respect the courage of the specification writer. It is an axiom that the writer of definite specifications puts quality above price. He also knows what should be a fair price and honest manufacturers and dealers do not increase prices when their products

XUM

are specified without an alternative. Such a course is suicidal. The definite specification indicates in its writer the possession of knowledge, ability and the courage of his convictions.

* * *

THE TREMENDOUS ABSORPTION OF capital by the government and the flow of gold to our shores gave speculation full sway until in 1920 the people instituted a strike against high prices, yet still demanding high salaries and high wages.

Deflation commenced and the government finances suffered so that taxes increased. The foolish governmental system of selling securities at rates of interest below the market rate and relieving these securities from taxation caused investors to put their capital into government securities instead of into productive enterprises. The government has tied up too much of our circulating medium and we suffer from a shortage of currency at a time when the per capita wealth exceeds anything heretofore known. Per capita circulation, however, bears a smaller ratio to per capita wealth than at any time in our history.

The confusion caused by this state of affairs has created a condition of uncertainty in the public mind that is converted into suspicion by numerous investigations and the unwise publicity given to them. The earlier investigations were needed and did the country good. Their success has simply caused imitators to attempt to play a chord with which the people are bored.

Business is resuming. From all sections come reports that plans are being prepared and contracts are being let. Competition is a natural law and we learn day by day that it is operating. Wages of building mechanics alone are firm, but this deterrent will be greatly modified when summer comes and a demand for labor sets in. Thousands of men competent to serve as building mechanics are not organized. The best authorities claim that if the amount of building, cubage not dollars, exceeds by twenty-five per cent. what was normal in 1913, a normal rate of building to take care of ordinary demands, will not be reached for nine years. The twenty-five per cent. increase is needed to make up deficiencies. The need everywhere is for houses costing less than ten thousand dollars; in the larger cities, apartment houses and tenements in which rooms will rent for less than ten dollars per month. The time for investigation has passed and our hard-worked investigators are needed on construction work with saws and the hammers they wield so well.

* * *

THE BUILDING INDUSTRY OF NEW York City is to be investigated again and again. By the State first, and then by the Federal government. The sum total of results of investigations recalls to one the statement of Thomas Hood about the Statistical Bureau in which he was employed for a time. "Statistics," said Hood, "enable many deserving party workers to keep alive. Their labors show us that in the course of a certain number of years one Irishman and a fraction of another, wear out two shirts and a small fraction of a shirt; and, no one ever sees an Irishman wearing other than the fraction of a shirt."

So the labors of partisan investigators reveal to the people many things which, played upon by the press, confuse the issue and serve to reduce the building industry to a small fraction of what it should be. Investigations have a value when they are needed, but the building industry has been over-investigated and needs a rest.

Every thinking man knows what is wrong and knows what the industry needs. Under the exigency of war and the need for materials and labor, the building industry was forcibly directed into one channel. This gave an opportunity for consolidation on the part of the manufacturers, materials dealers and, above all, organized labor.

The building industry, the second largest in this country, being second only to agriculture, is manifestly not to be classed as "an infant industry." It can very well take care of itself and for the present, the future, as in the past, may be safely left to work out its own problems. It is not properly a field for politicians to seek for campaign material, nor for government interference, state or National. There can be co-operation, but there is no need for the assumption of an overdone paternalism.

Mr. Untermyer's largely exploited scheme to provide for the housing shortage would have no reason for existence if the factors which now retard building were investigated so that the building industry, freed of impediments which it cannot overcome, might normally function.

Government investigation is not essential. The building industry can investigate its own shortcomings. What the government might and should do is to investigate those influences that are outside the industry, which now retard building progress.

VOL. CXXI. NO. 2387

FEBRUARY 15, 1922

HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

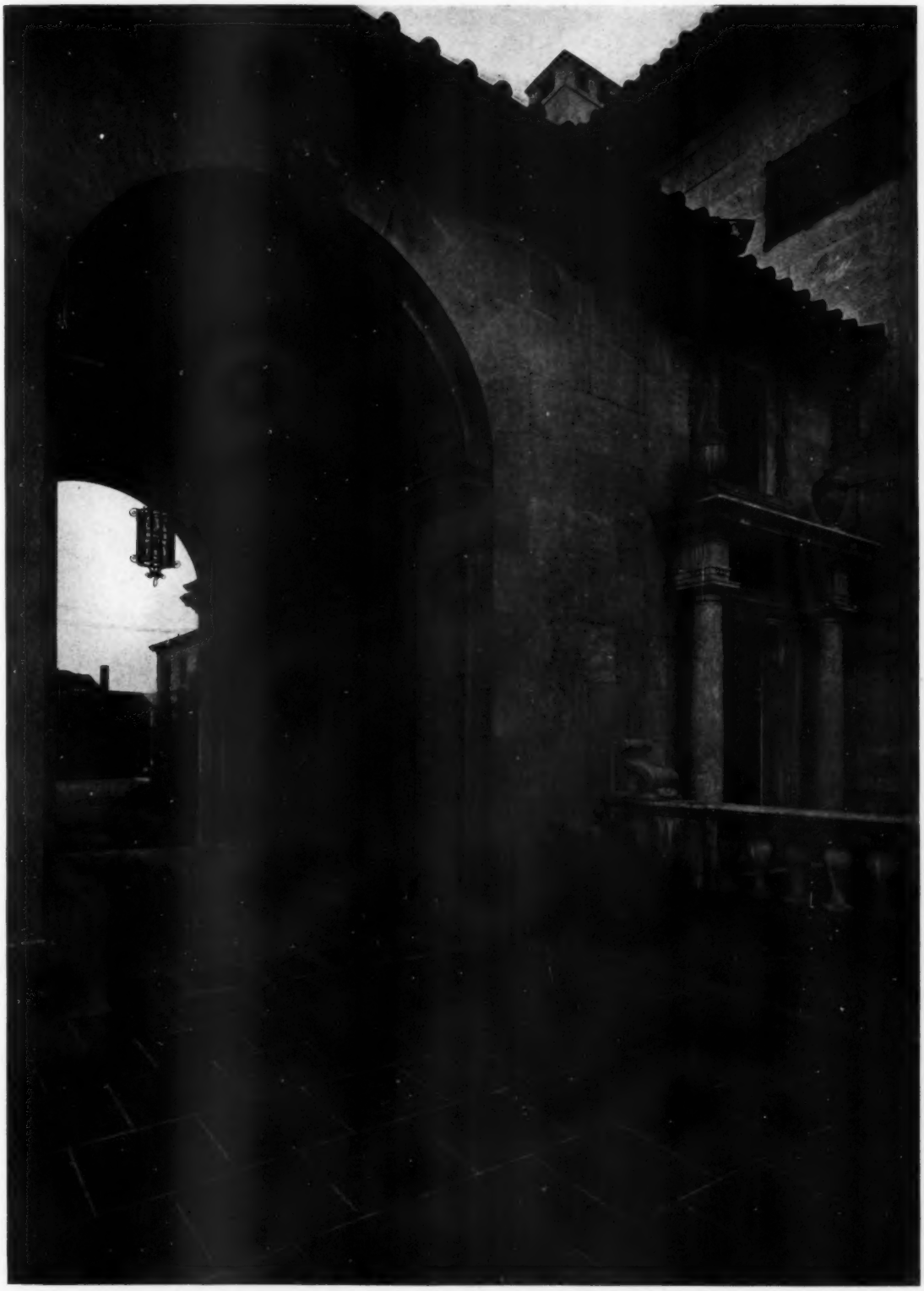
THE HALL

HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM



HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

DINING ROOM

HOUSE OF MRS. L. C. HANNA, CLEVELAND, OHIO

WALKER & GILLETTE, ARCHITECTS

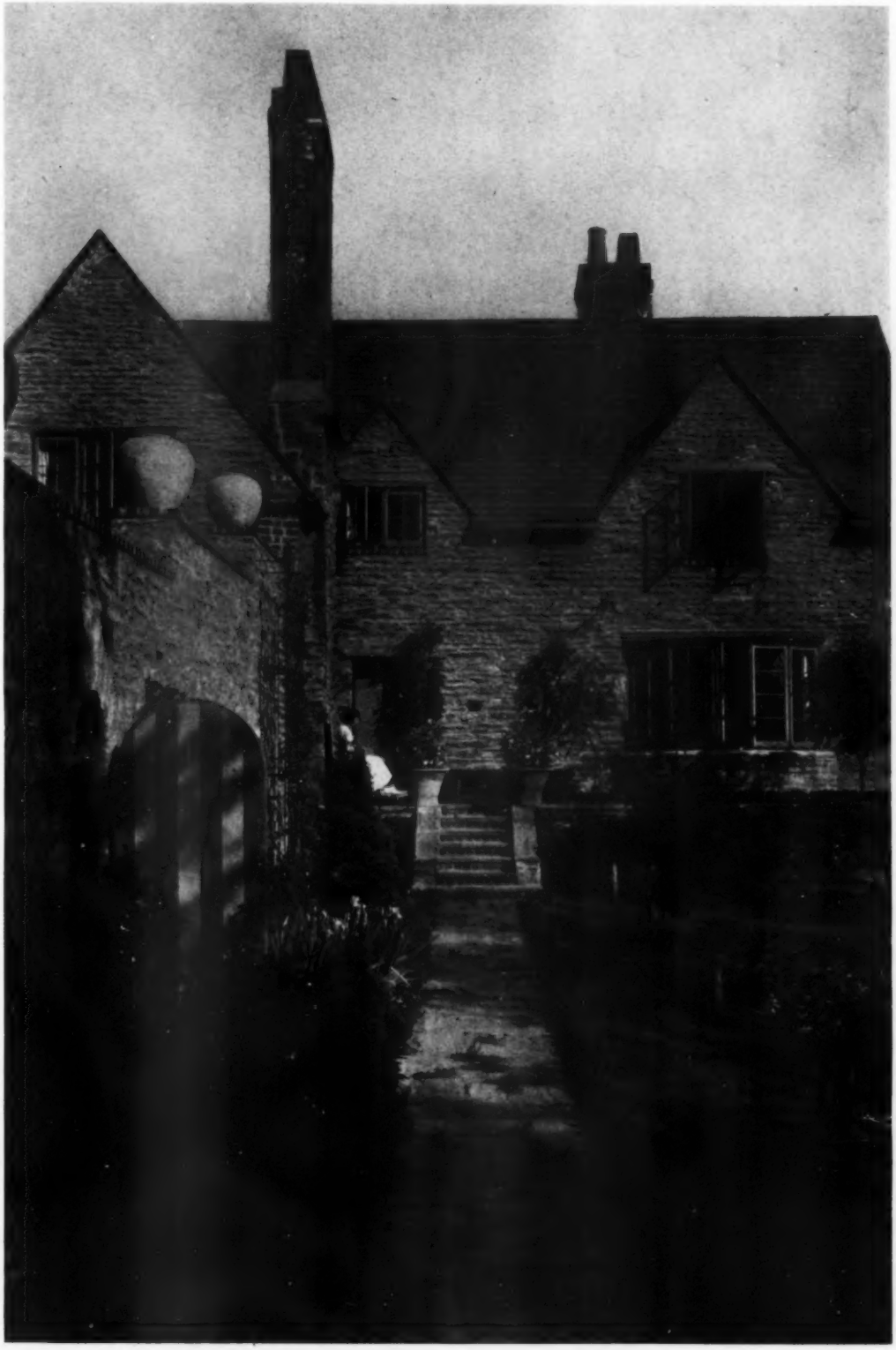
(Thirty-seventh Annual Exhibition, The Architectural League of New York)

HOUSE OF ROBERT T. MC CRACKEN, ESQ., GERMANTOWN, PHILADELPHIA, PA.

MELLOR, MEIGS & HOWE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

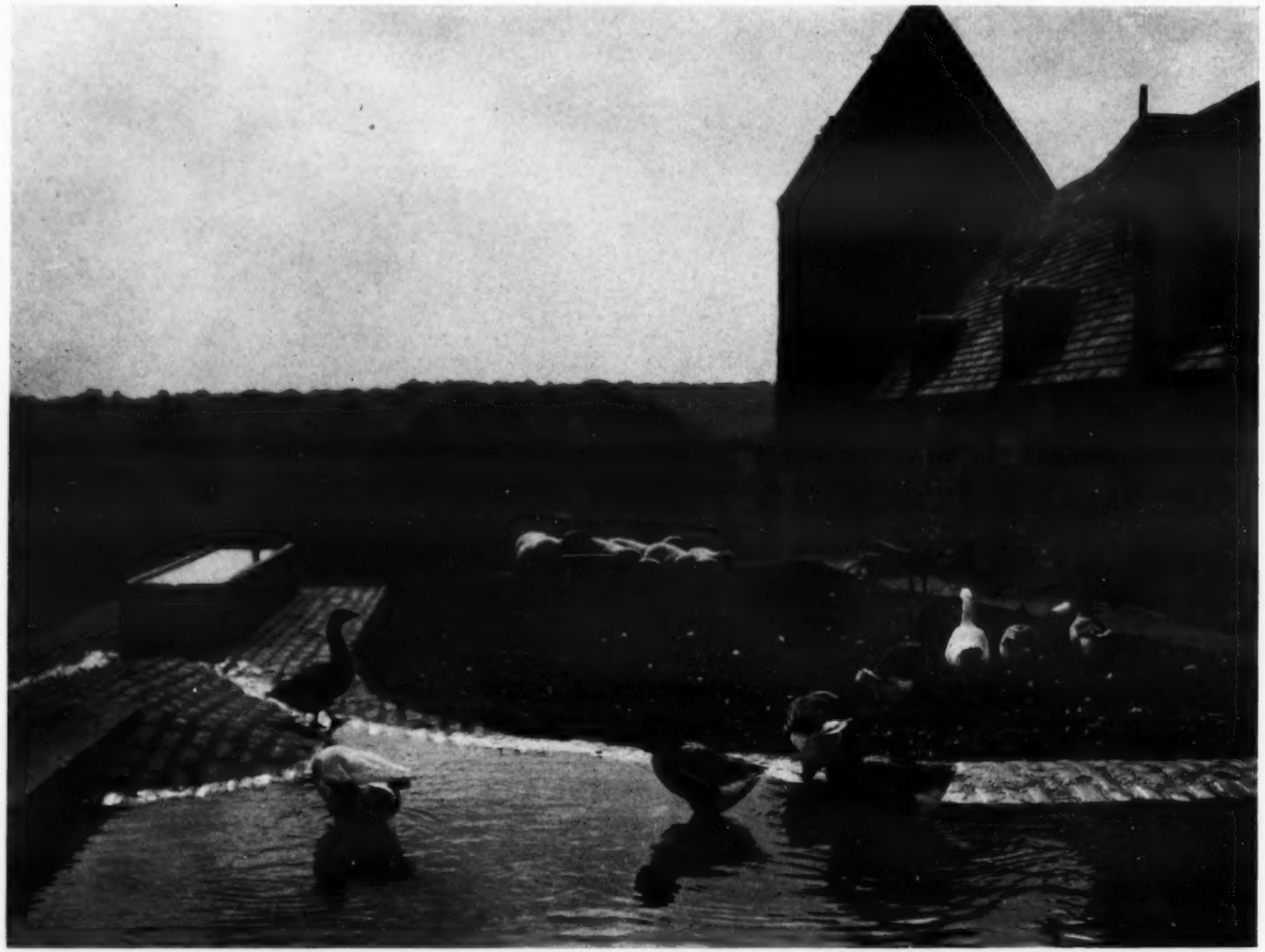


HOUSE OF ROBERT T. MC CRACKEN, ESQ., GERMANTOWN, PHILADELPHIA, PA.

MELLOR, MEIGS & HOWE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

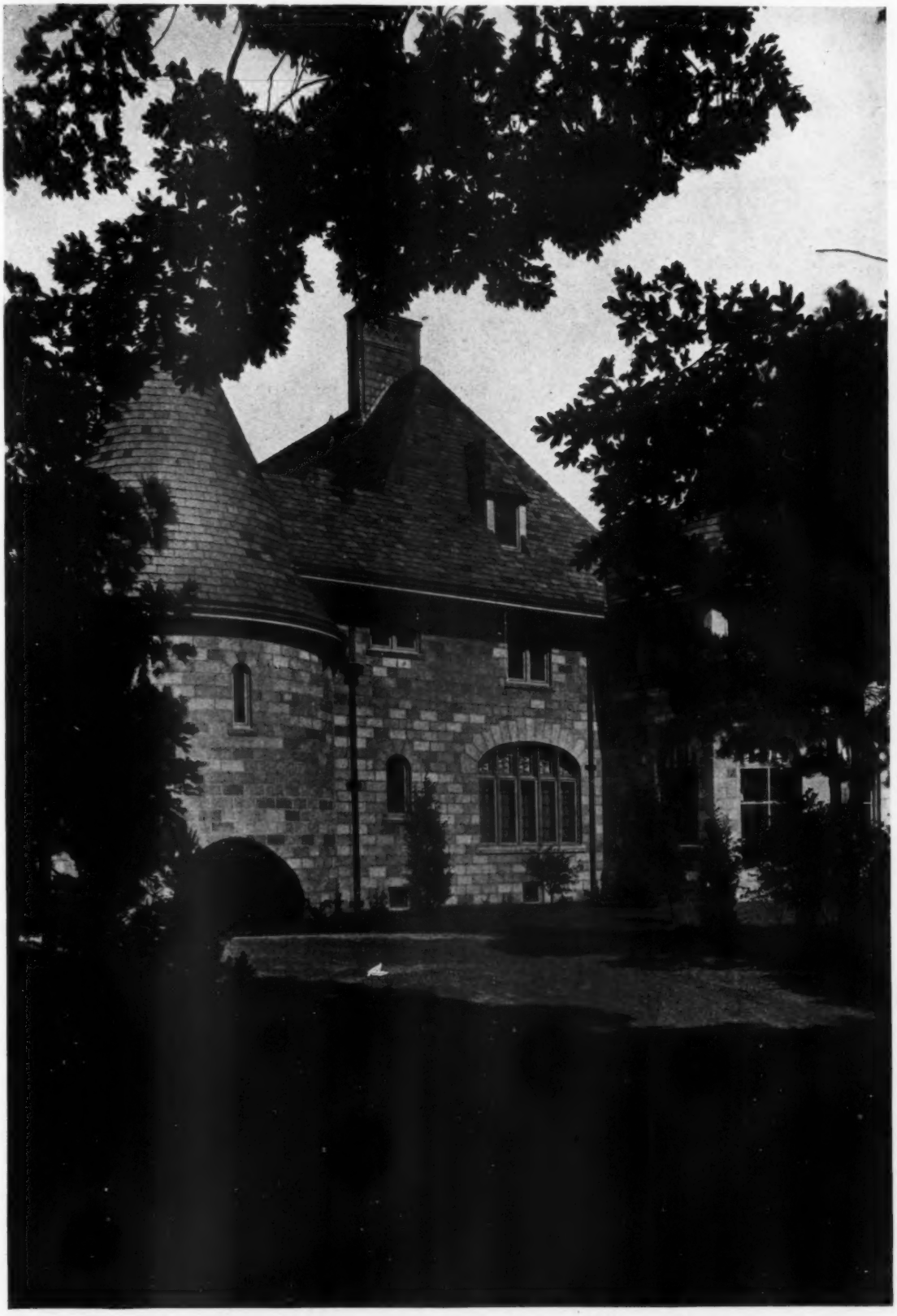
XUM



PIGEON TOWER, SHEEP FOLD AND GOOSE POND, FOR A. E. NEWBOLD, JR., ESQ., LAVEROCK, PA.

MELLOR, MEIGS & HOWE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)



HOUSE OF HAROLD H. WEEKS, ESQ., ISLIP, L. I., N. Y.

GROSVENOR ATTERBURY, ARCHITECT; STOWE PHELPS AND JOHN TOMPKINS, ASSOCIATES

BUILT OF CAST CONCRETE BLOCKS, FINISHED WITH A COLORED AGGREGATE. NOTE THE CAST CONCRETE CHIMNEY CAPS MADE TO SPECIAL DETAIL. ROOF OF MOTTLED GREEN AND PURPLE AND UNFADING GREEN SLATE LAID AT RANDOM, WITH SLATE GRADUATED FROM ¾ IN. IN THICKNESS TO ½ IN. AT RIDGES

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

STAIRHALL IN HOUSE OF HAROLD H. WEEKS, ESQ., ISLIP, L. I., N. Y.

GROSVENOR ATTERBURY, ARCHITECT; STOWE PHELPS AND JOHN TOMPKINS, ASSOCIATES

FLOOR IS PAVED WITH RED QUARRY TILE WITH SAME TILE AS BASE AND IN PART FINISHED WITH DARK RED BRICK. STAIRCASE IS BUILT OF REINFORCED CONCRETE WITH A FINISH OF BRICK ON TREADS AND RISERS. HAND RAIL OF WROUGHT IRON. WALLS, PLASTER WITH PLAIN SAND FINISH

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

HALL IN HOUSE OF RICHARD E. FORREST, ESQ., HARRISON, N. Y.

GROSVENOR ATTERBURY, ARCHITECT; STOWE PHELPS AND JOHN TOMPKINS, ASSOCIATES

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

HOUSE OF DAVID S. BALL, RIVERDALE, N. Y.

JULIUS GREGORY, ARCHITECT

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

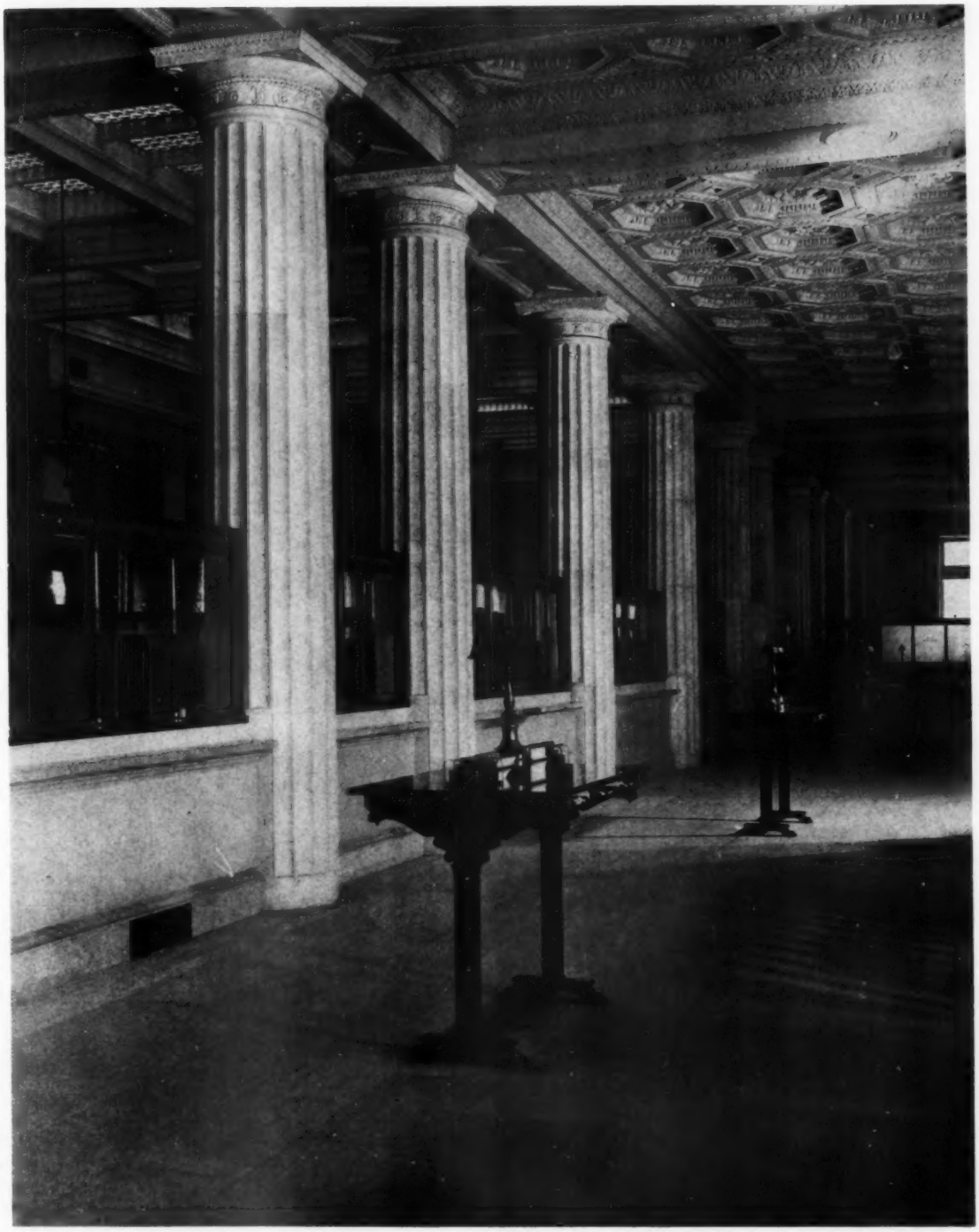
XUM

ELLIPTICAL STAIRCASE IN HOUSE OF MRS. H. LORILLARD CAMMANN

WM. F. DOMINICK, ARCHITECT

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM



INTERIOR VIEW, 42ND STREET BRANCH, NATIONAL CITY BANK OF NEW YORK

McKIM, MEAD, & WHITE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

LIVING ROOM, HOUSE OF SAMUEL A. SALVAGE, ESQ., FLUSHING, L. I., N. Y.

ROGER H. BULLARD, ARCHITECT

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

Exhibition, The Architectural League of New York

(*Continued From Page* 138)

of today are the men and women of the next generation. The fact that they have secured their preliminary education in school buildings of the highest type of development, the finest architectural design, will educate them, particularly the boys, to a most respectful attitude towards good architecture and its good influences.

And so, throughout this exhibition, the thoughtful observer can easily trace the broadening influence exerted by architects on the education of the people. They have taught people how to live up to the ideals suggested by their houses. They have made the school children equally proud of a dignified association. They have taught the business men that there is a wonderfully efficient and permanent means of exploiting manufacture. And with the development of good architecture and the development of an appreciation for it, all the arts have benefitted. The painters, the sculptors and the decorators have benefitted in the largest measure by this great development of architecture. Architecture as the first of all the arts, yet maintains its supremacy as the first in importance and influence of the people.

The Architectural League exhibition inspires these thoughts. Its whole character is dignified and truly representative of the first of the arts, and the entire profession is placed under obligation by this society and the men who have unselfishly given of their valuable time to insure its fine completion.

Description of this exhibition would not be complete if it omitted extended mention of the grouped display by the mural painters of small size model interiors of homes for people of moderate means. This feature is replete with the most valuable suggestions for architects, decorative designers and home makers. The best known of American mural painters have worked out these small model interiors in a variety of styles indicative of widely divergent lines of thought and antecedence in artistic education.

Decoration for a House at Scarboro, N. Y.
Fred Dana Marsh, Painter

In this distinguished grouping there may be found suggested the courtly sentiments of Ancient Florence, the substantial and well-conditioned life of Georgian England, the delicacy and refinement of Louis XV, and the distinctive charac-

XUM

teristics which mark the period of Marie Antoinette.

Taking this interesting feature as a whole, it may, with moderation, be said to mark an epoch in the history of American art. In these miniature arrangements for different types of rooms suitable to the houses of folks of moderate means, there may be found in actual and practical form, the practical advice of experienced artists and a great multitude of home makers.

The general character of the exhibition as a whole reflects the greatest credit on the Exhibition Committee and suggests in this instance, as it has in the past, that a great many men in the profession are giving a large amount of valuable time and the highest trained services to co-operate for the best results and the most successful outcome of the League exhibition.

The catalog has been prepared with usual care and is encyclopædic in its completeness as a record

Arthur Covey, Designer

There are no good reasons that can be advanced why small domiciles should not be just as artistic and just as beautifully developed as the houses of the ultra rich. By developing the small house model idea, the majority of our people can profit by the taste and learning of our best known decorators, architects, painters and draftsmen.

At the very outset of the opening of the exhibition this unusual feature afforded the greatest amount of interest and its excellent arrangement made it possible to study the various designs with ease and comfort.

of the best work in architecture and the allied arts that has been completed during the past twelve months.

We took occasion, in a previous issue of THE AMERICAN ARCHITECT to suggest the desirability of selecting from this exhibition a quantity of material that might form a traveling architectural exhibit and be shown throughout the country. Having had the privilege of a private view we are more impressed than ever with the practicability of such an exhibition, and strongly urge its consideration by the League.

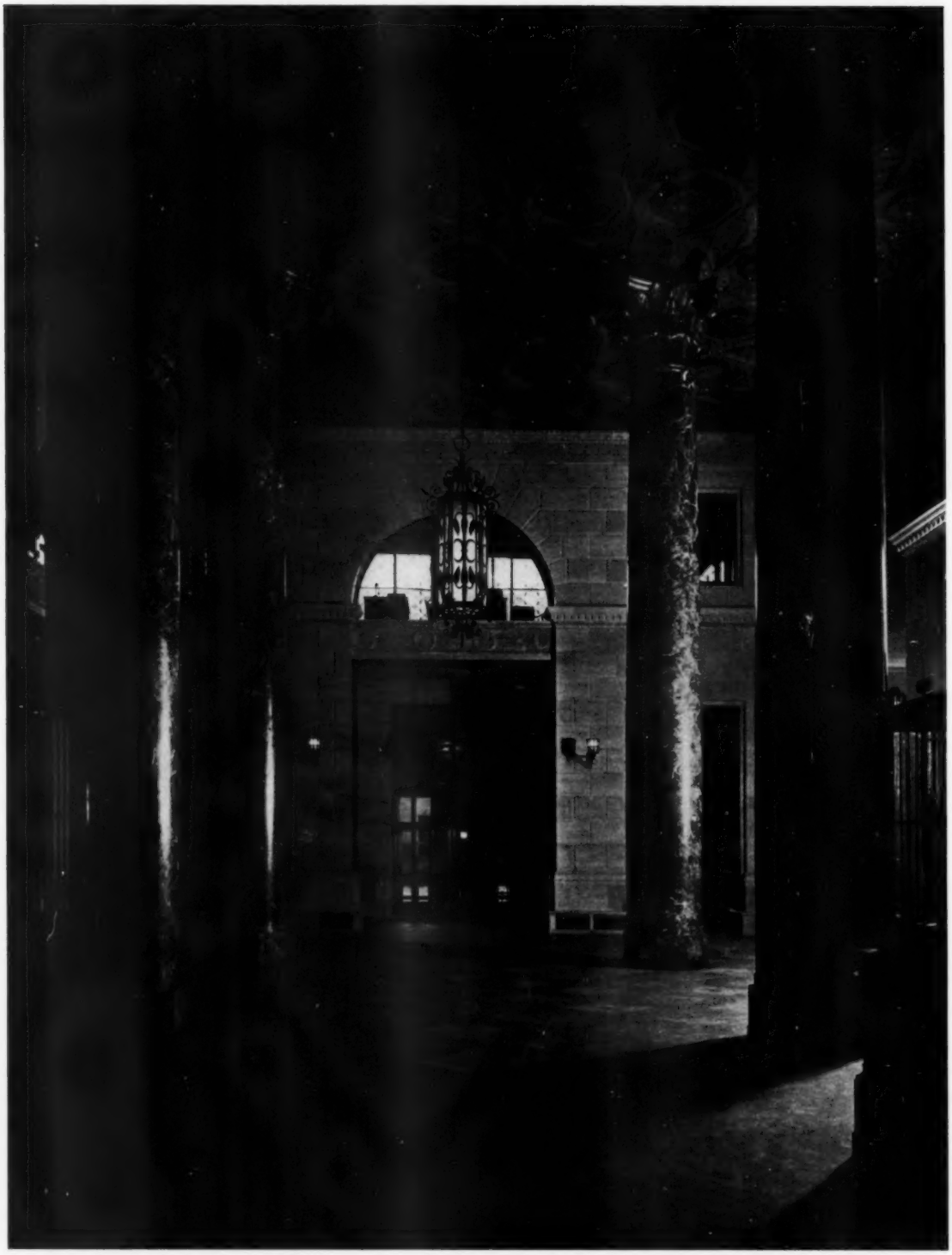
The Awards

THE awards were announced by the chairmen of the juries of award. Walker and Gillette received the highest honors in architecture for "the general excellence of their residential work." "For the distinctive character of his work in decorative sculpture" Leo Lentelli received the medal in this division. Ezra Winter, "for his decoration of the ceiling in the Cunard Line offices," received the medal in painting. Olmsted Brothers, of Brookline, Mass., were awarded first honors in landscape architecture for their designs of the gardens of the Warren Bicknell estate, in Cleveland, and H. G. Latham, of Brookline. In native industrial art the award was made to Samuel Yellin for his work in wrought iron.

Additional honors were the Avery prize, which was given to Miss Grace H. Talbot for her bronze sculpture, "The Novice," and the collaborative prize in architecture, sculpture and painting. This was presented to F. H. Creamer, C. Paul Jennewein and George Davidson, for their design and execution of the full scale entrance doorway in the south gallery.

Wm. F. Dominick, Architect

XUM



VIEW LOOKING TOWARD ENTRANCE

BANKING ROOM, NEW YORK TRUST COMPANY, NEW YORK.

WALKER & GILLETTE, ARCHITECTS

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

OFFICERS' SPACE

DETAIL OF LOBBY

BANKING ROOM, NEW YORK TRUST COMPANY, NEW YORK.
WALKER & GILLETTE, ARCHITECTS
(Thirty-seventh Annual Exhibition, The Architectural League of New York)

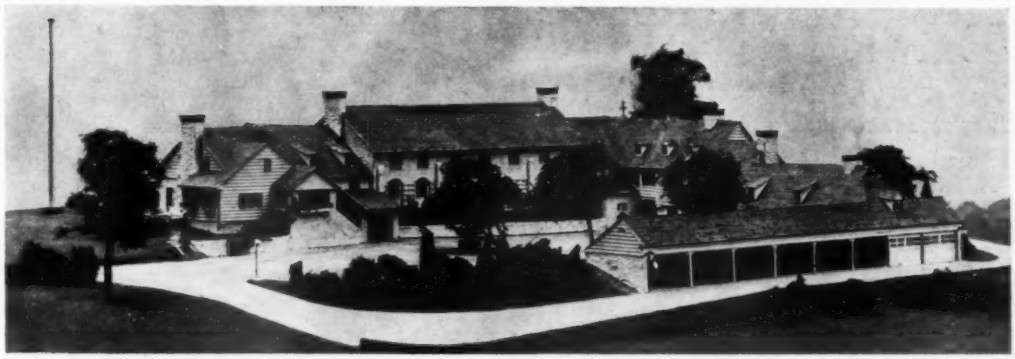
XUM

INTERIOR VIEW

ST. STEPHEN'S CHURCH, RIDGEFIELD, CONN.

W. K. RAINSFORD, ARCHITECT

(Thirty-seventh Annual Exhibition, The Architectural League of New York)



MODEL OF GROUP FOR OAKLAND GOLF CLUB, BAYSIDE, L. I., N. Y.

HOUSE OF MRS. HUGH D. AUCHINCLOSS, FAIRFIELD, CONN.
ROGER H. BULLARD, ARCHITECT

MODEL OF A HOUSE AT EAST HAMPTON, L. I., N. Y.
LUCIAN E. SMITH, ARCHITECT

(Thirty-seventh Annual Exhibition, The Architectural League of New York)

XUM

DEPARTMENT OF SPECIFICATIONS

Specification Outline for Foundations

In the previous four issues of The American Architect this department has discussed foundation construction work, shoring and underpinning of adjoining buildings and sheet piling work. The assumption was made that the scope of this series should be restricted to exterior or retaining walls up to grade line and interior column or wall footings up to the bases of interior columns or to top of wall footings.

In briefing these discussions for the following suggested outline the reader may discover minor details that were not given prominent mention. The outline is capable of expansion or contraction, according to the desires of the user and will serve to indicate, to some extent, the sequential steps necessary to the construction of a specification for foundations.

I. General Conditions

- a. A paragraph referring the reader to the General Conditions that will be made a part of the contract and which should be read by all bidders. This should be a standard clause.

II. Scope of Contract

- a. Extent of the work.
- b. Work of a similar character that already has been done by other contractors.
- c. Work of a similar character that will be executed later by other contractors.
- d. A statement as to soil conditions that may explain subsequent specification requirements for sheet piling, drainage of ground water or other phases of a similar character
- e. Disposal of excavated material
- f. If the statement under "a" above is explicit, omit the too common "all inclusive" clause which so often serves as a dumping ground for disputed claims.

Note. If the statement under "a" can be arranged in tabulated form its clarity will be accentuated and the businesslike appearance of the specification will be improved.

III. Examination of Site

- a. Caution bidders of the necessity for making visual examination of physical conditions of the site before estimates are submitted so that foreseen expenses may be anticipated and included. Do not assume, however, that work that cannot be anticipated by the architect should be foreseen and included by the contractor in his bid.

IV. Quality of Materials

- a. Each material that the contractor is required to furnish should be listed here and the standards of excellence that will determine their acceptance or rejection should be specified distinctly. This grouping is suggested here so that all readers of the specification will know where to turn to when looking for quality of materials.

Note. Although subsequent outlines will present the matter in greater detail the specifications for the following materials may be required.

1. Cement
2. Sand
3. Gravel
4. Crushed Stone
5. Slag
6. Integral Waterproofing Compounds
7. Reinforcing Steel
8. Sheet piles
   - Wood
   - Steel
9. Foundation Piles
   - Wood
   - Concrete
     - Pre-Cast
     - Cast in place
   - Steel
10. Caisson Material
    - For open wells
      - Lagging
      - Rings
    - For pneumatic work
      - Shields
      - Material for joining caissons used as watertight retaining wall construction
11. Rubble Stone
12. Brick
13. Concrete Blocks
14. Clay Tile Blocks
    - Standard building tile
    - Telephone Conduit

V. Samples of Materials

- a. If samples of any materials are to be submitted for approval before delivery, state so, in order to avoid later unpleasant experiences.

VI. Inspection of Materials
- a. If certain materials are to be inspected by testing engineers, state so, laying down all conditions that the contractor will be required to meet.
- b. It is suggested that testing engineers be employed and paid by the Owner direct.

VII. Delivery of Materials
- a. If materials are to be delivered over switch track close to or on site, state so. If it is believed that all materials will be delivered by truck it may not be necessary to use this paragraph unless conditions out of the ordinary are present.

VIII. Hours of Work
- a. If shoring and underpinning for adjoining buildings or sheet piling operations must be carried on continuously, state so, giving reason for this requirement.
- b. If caisson excavation work must be carried on continuously this, too, must be specified.

IX. Contractor's Design Drawings
- a. If the specifications require the furnishing of fabricated items or other work for which the contractor is to prepare design drawings for the approval of the architect or his engineer (either consulting or testing) the governing conditions should be stated.
- b. Shop or fabrication drawings based on the contractor's design drawings should, of course, be submitted for approval where the controlling design drawings must meet approval.

X. Construction Plant
- a. It is a debatable question whether the specifications should attempt a very great control over the construction plant although, for some operations comprising extraordinary phases, there may be occasions demanding some specification control.
- b. Erection machinery should be so disposed that little interference will be given the work of contractors not concerned with the use of these particular appliances.
- c. Erection machinery that is to be placed on structural concrete structures should not be located without the approval of the designer of the structural framework, else damage may be done to the structure.

XI. Soil Tests by Applied Loads
- a. Number to be made
- b. Character of testing platform
- c. Area of soil to be tested
  1. At least three square feet
- d. Provision against upheaval of soil under test
- e. Gauges
- f. Record of settlements
- g. Application of loads
  1. Full design load—duration
  2. Excess load—duration

XII. Soil Tests by Borings
- a. Number to be made
- b. Augur borings
- c. Wash borings
- d. Core drillings
- e. Method of recording observations
- f. Care and storage of material removed

XIII. Shoring and Underpinning
- a. State existing conditions, giving, if possible, the depth, character of construction and present condition of foundations or other structures that are to be shored or underpinned.
- b. State whether structures that are to be underpinned or shored will be occupied during the operations and, if so, whether portions of the structure must be worked on at stated intervals or if the work may be carried on continuously.
- c. Require observation of levels on walls being shored or underpinned and on other parts of the structure that may be affected by settlement of such walls, these observations to be made at stated intervals.
- d. State character of shores, needles and underpinning that may be required unless the character and design are to be left entirely to the discretion of the contractor.

XIV. Sheet Piling
- a. State reasons for use of sheet piles
- b. Character of sheet piles
- c. Fabrication, placing and bracing of sheet piles

XV. Drainage of Excavation
- a. State requirements as to removal of water and maintenance of dry conditions—to include rain fall as well as ground or other water seepage.

XVI. Finished Excavation Work
- a. State what excavation work will be done by the contractor for rough excavation.
- b. Be definite with respect to responsibility for excavation of pits or trenches for elevators, sumps, tanks, drainage systems or other similar work.
- c. If some banks of earth may be used as concrete forms, state so, otherwise re-

XUM

quire that finished excavation be sufficient to permit correct erection and removal of forms.

d. Require that all excavations for foundations and footings be carried to soil of suitable character. If drawings show specific levels for foundations a price per cubic foot or yard should be asked so that additional excavation and foundation work will be understood to be additional to the contract price. The unit prices submitted should include the net cubic footage of foundations built regardless of excess excavation the contractor may wish to make.

e. If excavations in soil of suitable bearing capacity are carried below designed levels, prohibit filling and require that foundations be started at such level without extra cost.

f. If unit prices per cubic yard for excavation work are requested do not fail to be explicit in stating whether measurement will be made of excavated material in its natural position or as placed in trucks. This point is of the greatest importance.

XVII. Pile Foundations

a. Kinds of piles
   1. Wood piles
   2. Concrete piles
      pre-cast
      cast in place
      reinforcement
   3. Disc piles
   4. Screw piles
   5. Sand piles

b. Sizes of piles
c. Chemical preservation of wood piles
d. Mechanical protection of piles
e. Metal shoes and butt rings
f. Driving of piles
   1. Drop hammer
   2. Steam hammer
   3. Water jet
   4. Broomed butts cut off wood piles
   5. Prohibit over-driving

g. Determination of penetration
h. Cutting off piles—below water level
i. Test loads on piles
j. Rejection of driven piles and driving of additional ones
k. State method of payment for piles, preferably per linear foot of driven pile as cut off to receive cap or footing.

XVIII. Caisson Foundations

a. Open well type
   1. Lines, grades and bench marks, for layout, checking after lagging is started, when wells are completed and when concreting is nearly finished.
   2. Lagging—preparation of—sizes
   3. Lagging rings—form—sizes—number
   4. Coffer-dams
   5. Excavation—to be continuous except on Sundays and holidays—held to required diameter—no excess excavation—special precautions where shifting soils are encountered and where work is close to existing foundations—belling out.
   6. Placing of lagging and rings—placed as excavation progresses—rings wedged where necessary to hold lagging tight against earth
   7. Inspection of wells—as work approaches final levels
   8. Test holes drilled—state number of holes or ask for price per linear foot per hole.
   9. Mix of concrete—see subsequent issues for concrete specifications.
   10. Placing of concrete—removal of rings—lagging left in place. If soil requires leave rings in place.
   11. Caisson topping—granite aggregate—reinforced.

b. Pneumatic Caissons
   1. Type and design
   2. Sinking
   3. Filling

XIX. Footings and Foundation Walls

a. Plain concrete
b. Reinforced concrete
c. Forms for concrete—erection and removal
c. Reinforcing—furnishing and placing.
d. Placing of concrete
e. Stone
f. Brick
g. Concrete blocks
h. Hollow clay tile
i. Steel grillages

COMBUSTION ENGINEERING BUILDING, BROAD STREET, NEW YORK

LUDLOW & PEABODY, ARCHITECTS

XUM

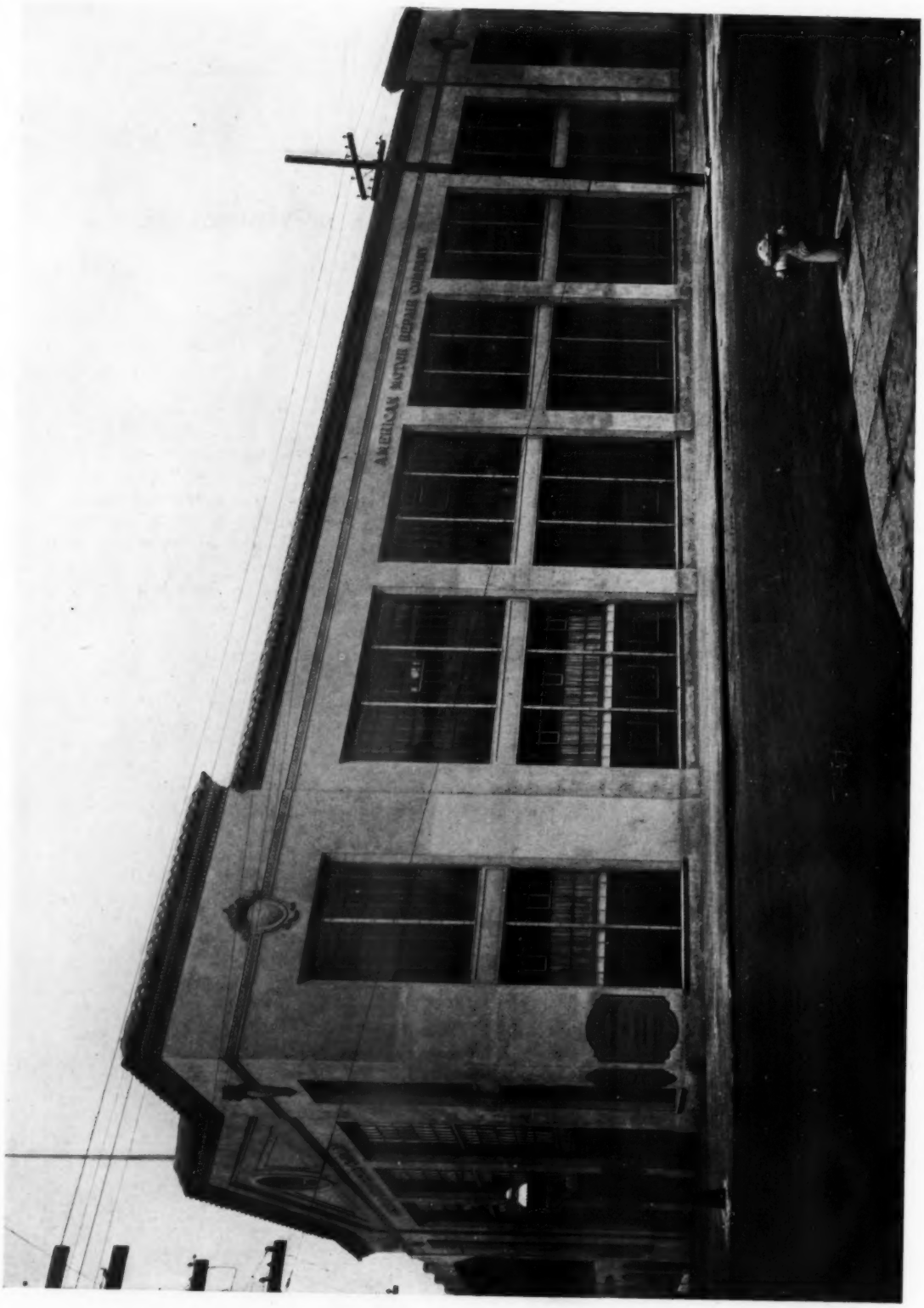
DETAIL OF LOWER STORIES
COMBUSTION ENGINEERING BUILDING, BROAD STREET, NEW YORK
LUDLOW & PEABODY, ARCHITECTS

DESERET BANK BUILDING, SALT LAKE CITY, UTAH

CANNON & FETZER, ARCHITECTS

LUDLOW & PEABODY, ARCHITECTS

XUM



BUILDING FOR AMERICAN MOTOR REPAIR CO., SAN FRANCISCO, CAL.
SYLVAIN SCHNAITTACHER, ARCHITECT

DEPARTMENT OF ARCHITECTURAL ENGINEERING

CAN IT BE BUILT?

A Discussion of the Treatment of Common Problems that take Extraordinary Form

By David C. Coyle, C. E.*

IN the early stages of a design, when it is as yet nothing but a plastic mass of sketches and ideas in process of formation, the question of structural possibilities is always hovering in the background. For most cases there are the precedents, in the architect's experience and in his studies, defining more or less definitely the limits of what can be done. Beyond them lie the unusual problems, or the opportunities to handle a design in an unusual way; a field whose boundaries are gradually enlarging from year to year. This article is intended to outline a few of the answers to problems which arise so infrequently as to require special treatment, and to suggest certain possibilities of design outside the ordinary precedents. These are all simply variants of the question whether the necessary structural material will go in the available space; a point upon which it is desirable to have as full data as possible in advance of the finished design. To provide some of these data in a form more convenient than is usually available, is the object in the discussion of the following frequently recurring cases.

One common problem that may take an extraordinary form is the gallery of an auditorium. If there are two rows of columns back of the gallery, it may be cantilevered, so as to eliminate posts and hangers; but, if it has to run along an outside wall on a single row of columns, and if it is too long to span from end to end, the matter is not so simple. If the columns run to a roof twelve or fifteen feet above the gallery, the gallery beams can be strongly attached to the columns, and the roof will hold the top of the columns so that the whole will not pitch forward into the auditorium. But if the roof is very high, the columns must be correspondingly deep, involving heavy pilasters, or else the live load may cause a noticeable deflection, and the column may bend enough to injure the wall. Such a case has been handled by X bracing the floor of the gallery from end to end; where vertical bracing in the side walls took care of the tendency to pitch forward. Thus the columns above the gallery were relieved of this load, and it was unnecessary to make them of unusual size. Another form of gallery without visible supports may be made by spanning a deep girder from end to end, under the second or third row of seats, where the depth is sufficient to give the necessary room. In this case the toe of the gallery is carried on beams cantilevered out from the girder.

It often happens that a large room has to be placed in the lower part of a building, and the columns above must be carried by a truss occupying an entire story. Passages through such truss have to dodge the web members, often with exasperating results. Where there is an odd number of panels the web stress across the center panel is usually small, and it has been found possible to omit the diagonal member entirely from this panel. The bottom chord was made a plate girder of moderate depth, stiff enough to carry the shear ordinarily taken by the diagonal. Another possibility is to move one or more panels of the truss from their normal location into the story above; this arrangement requires the addition of one extra panel to brace the offset and involves expensive details. Where the supporting columns below can be placed some distance in from the ends of the truss, the stresses in the latter are considerably reduced, which may be an important consideration where space is cramped, and will also help to reduce the cost.

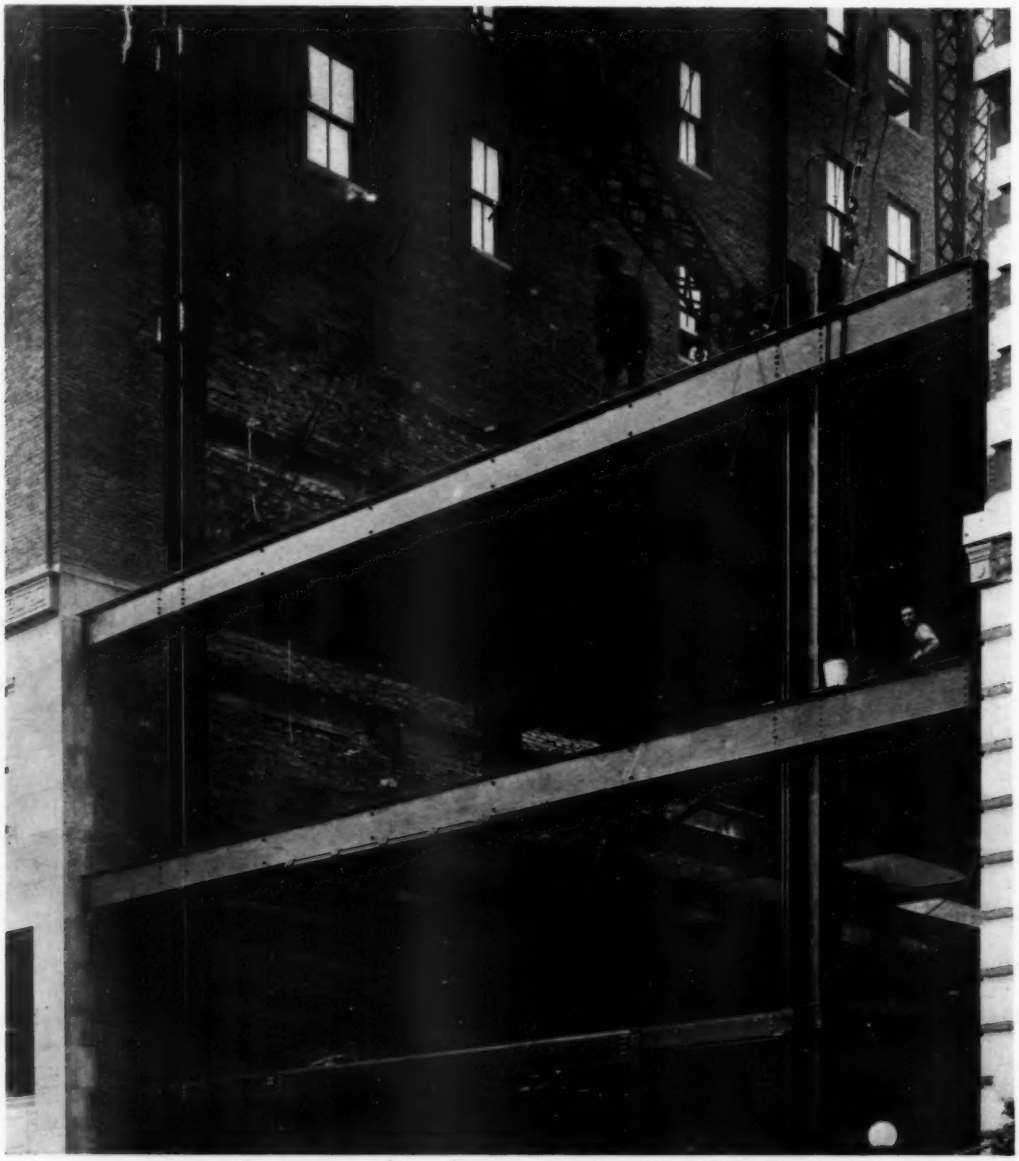
Where the design makes it possible to set the wall columns back five or six feet from the wall, as in a city building with no side windows, such an arrangement may have advantages. In a loft building forty feet wide, with columns so placed, the interior columns were entirely eliminated and the floor girders were only 24 inches deep, straddling the columns and picking up the wall on their

* *With Gunvald Aus Company, Engineers, New York City.*

SYLVAIN SCHNAITTACHER, ARCHITECT

XUM

cantilever ends. Had the columns been placed in the wall in the usual position, the girders would have been much deeper, though not so wide. Another effect of this cantilever arrangement at every floor is the elimination of cantilevers in the foundation; and in the case above mentioned it also made it possible to avoid the underpinning of an adjoining building.



A loft building, 66-70 West 40th Street, New York City, with side walls carried on cantilever ends of floor girders
Necarsulmer & Lehlbach, Architects — Gunvald Aus Company, Engineers

Domed roofs hold an evident fascination for architects, and a less evident but very powerful fascination for engineers. Their possibilities are many, but from an engineering standpoint they have certain limits. Almost any size of hemispherical dome can be built, but if it stands on a cylindrical wall or row of columns, it is impossible to make it stay up without rings around the bottom, or buttresses which are deep enough to produce an equivalent effect. A masonry dome has no theoretical necessary thickness except to provide for the slight shifting of load due to snow or wind. If it is flatter than a hemisphere, however, it becomes a more difficult problem. It may even be impossible if it is very large and flat, because of the tremendous strains incident to

unequal snow and wind loads. Roofs of this shape may be built as false domes, containing steel roof trusses between their outer and inner surfaces. Domes of elliptical plan are difficult but possible, either in steel or in masonry with steel bands, but, even more than circular domes, they need to be high in profile to keep the stresses within bounds.

66-70 West 40th Street, New York City, on Nov. 17, 1921

Thin floors are often a matter of disagreement between the optimistic architect and the pessimistic engineer. There are cases, however, when unusually thin floors may be achieved. In an apartment house, with its light live load, a floor of fourteen foot span has been made with six inch H sections as beams, figured not for strength but for deflection. A dormitory has been economically designed with a plain six-inch slab with no beams or girders and without the usual drop panel or enlarged column capital, with columns of reinforced concrete spaced ten by twelve feet. A very thin floor may be obtained by certain patent two-way tile and concrete combinations, with which panels as large as sixteen feet square are designed for a six-inch slab. It is a bold engineer, however, who will express an opinion in advance as to the stiffness of such a floor, for its deflection under moving loads cannot, with available data, be accurately computed.

Where the spacing of columns is not fixed by architectural considerations, it is convenient to know in advance what will be most likely to give an economical design. In general it may be said that tall buildings should have few columns and long girders, while low buildings are more economical with smaller bays. If the columns rest on rock near the surface, or on spread or pile footings, the more columns the less the cost. If the

The same building, Jan. 17, 1922

foundations must go deep, there should be as few columns as possible.

One common annoyance of architectural work is the necessity for searching through a steel handbook for the dimensions of steel beams. The following tables are convenient for ascertaining the required clearance from the face of the fireproofing to the center of the steel beam. In the case of channels the distance given is from face of concrete to back of channel when its legs are turned toward the opening. For finding the dimensions of steel around openings, given the steel framing design, these tables will save considerable

Beth I Beams				Beth. Girders				Carnegie I Beams			
Beam		Flge	F+2	Girder		Flge	F+2	Beam		Flge	F+2
30"	120	10½	7¼	30"	200	15	9½	24"	115	8	6
28"	105	10	7		180	13	8½		110	8	6
26"	90	9½	6¾	28"	180	14⅜	9¼		105.9	7⅞	6
24"	104.5	9¾	6⅞		165	12½	8¼		100	7¼	5⅝
	99.5	9¾	6⅞	26"	160	13⅝	8⅞		95	7¼	5⅝
	95.5	9¾	6⅞		150	12	8		90	7⅛	5⅝
	84	9¼	6⅝	24"	140	13	8½		85	7⅛	5½
	83	9⅛	6⅝		120	12	8		79.9	7	5½
	73	9	6½	20"	140	12½	8¼	20"	100	7¼	5⅝
22"	71.5	8½	6¼		112	12	8		95	7¼	5⅝
	68.5	8½	6¼	18"	92	11½	7¾		90	7⅛	5⅝
	65.5	8½	6¼	15"	140	11¾	7⅞		85	7⅛	5½
20"	82	8⅞	6½		104	11¼	7⅝		81.4	7	5½
	72	8¼	6⅜		73	10½	7¼		75	6⅜	5¼
	69	8⅛	6⅛	12"	70	10	7		70	6⅜	5¼
	64	8⅛	6		55	9¾	6⅞		65.4	6¼	5⅛
	59	8	6	10"	44	9	6½	18"	90	7¼	5⅝
18"	74	8¼	6⅜	9"	38	8½	6¼		85	7¼	5⅝
	69	8¼	6⅜	8"	32.5	8	6		80	7⅛	5⅝
	64.5	8¼	6⅜						75	7	5½
	59	7¾	5⅞						70	6¼	5⅛
	54	7⅝	5⅞						65	6¼	5⅛
	52	7⅝	5¾	Channels					60	6⅛	5⅛
	48.5	7½	5¾	Channel		Flge	F+2		54.7	6	5
15"	71	7½	5¾	15"	55	3⅞	5⅞	15"	70	6¼	5⅛
	64	7¼	5⅝		50	3¾	5¾		65	6⅛	5⅛
	54	7	5½		45	3⅝	5⅝		60.8	6	5
	46	6⅞	5⅜		40	3½	5½		55	5¾	4⅞
	41	6¾	5⅜		35	3½	5½		50	5⅝	4⅞
	38	6⅝	5⅜		33.9	3½	5½		45	5⅝	4¾
12"	36	6⅜	5⅛	12"	40	3½	5½		42.9	5½	4¾
	32	6¼	5⅛		35	3⅜	5⅜	12"	50	5½	4¾
	28.5	6⅛	5⅛		30	3¼	5¼		45	5⅜	4¾
10"	28.5	6	5		25	3⅛	5⅛		40.8	5¼	4⅝
	23.5	5⅞	5		20.7	3	5		35	5⅛	4⅝
				10"	30	3	5		31.8	5	4½
Carnegie Spec. Is.					25	2⅞	4⅞	10"	35	5	4½
Beam		Flge	F+2		20	2¾	4¾		30	4⅞	4⅜
27"	90	9	6½		15.3	2⅝	4⅝		25.4	4⅝	4⅜
24"	74	9	6½	9"	13.4	2½	4½	9"	21.8	4⅜	4¼
21"	60.5	8¼	6⅛	8"	11.5	2¼	4¼	8"	18.4	4	4
18"	48	7½	5¾	7"	9.8	2⅛	4⅛	7"	15.3	3⅝	3⅞
15"	37.5	6¼	5⅜	6"	8.2	2	4	6"	12.5	3⅜	3¾
12"	28	6	5	5"	6.7	1¾	3¾	5"	10	3	3½
10"	22.25	5½	4¾	4"	5.4	1⅝	3⅝	4"	7.7	2¾	3⅜
8"	17.5	5	4½	3"	4.1	1½	3½	3"	5.7	2⅜	3¼

time and possible errors. They also give the new standard weights of Carnegie beams, and the recent additions to Carnegie and Bethlehem sizes.

Factory Lighting Code

THE Code of Lighting for factory mills and other work places, based upon earlier codes issued by the Illuminating Society and recently revised by a sectional committee under the sponsorship of this society has been officially approved as American Standard by the American Engineering Standards Committee.

The Code was first issued by the I. E. S. in 1915 and was revised slightly in 1918. Since June, 1920, the revision of the code has been carried out under the rules of procedure of the American Engineering Standards Committee. It is very brief, consisting of a few rules covering the minimum requirements, from the point of view of safety, for the illumination of traverse spaces during the time of use, methods for the avoidance of glare, and for exit and emergency lighting. Supplementary to the code are numerous suggestions relative to illumination values considered desirable for different classes of work and an outline of the advantages of good lighting.

State lighting laws based upon the I. E. S. code have already been put into effect in Pennsylvania, New Jersey, New York, Wisconsin, Oregon, California and Ohio. The adoption of the code is now under consideration in several other states. Copies may be secured from the American Engineering Standards Committee, 29 West 39th Street, New York City.

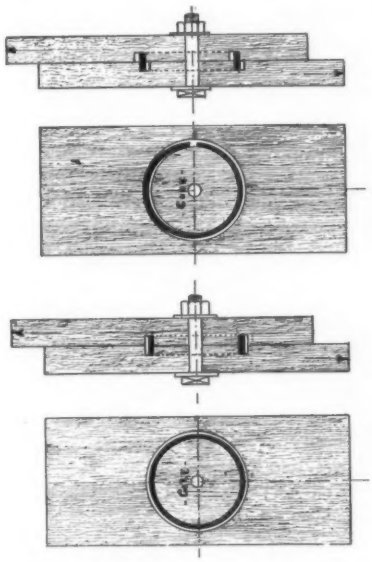
Ring Dowel for Timber Trusses

OUT of Germany comes a new idea in the framing of timber trusses, a ring dowel, shown in the accompanying cut. In order that it may at all times fit closely against all bearing surfaces, the ring is cut through on one side. Changes in the direction of stress, caused by shrinkage or any other movement in the timbers, has no effect upon the ring dowel for the cut makes it elastic. A special machine is used for cutting grooves into which the rings fit. A groove is cut in each timber one-half the width of the ring in depth and with a width equal to the thickness of the ring, so the fit is snug. In the cut the width of groove is exaggerated in order to show the advantage gained by cutting the ring.

The idea is excellent and will simplify the framing of timber trusses, making the design and erection almost as simple as similar operations in connection with steel work. The cutting of the grooves and insertion of the ring dowels costs much less than the cutting and fitting of shear pins and bolts.

The center of stresses in each member passes through the center of the ring into which the dowel is fitted and a bolt holds the pieces together. It is said that in Germany the friction on the faces of the members is recognized as effective but this is not allowed in American specifications, so the bolt cannot be fitted as tightly as it might be if the friction were to count. The friction may be considered as being merely adventitious. The

convenience of the device and the great reduction in cost it effects will make it popular, but its use



Ring dowel for timber trusses. Width of groove exaggerated to show advantage of split dowel

in no wise changes any of the fundamental principles underlying the design of trusses.

Strength of Thin Walls

IT would be a brave man who dared suggest the use anywhere in the United States, of brick bearing walls having a thickness of less than eight inches. In fact it requires considerable courage to advocate the use of eight inch walls. In England according to *The Architects' Journal,* London, of January 11, experiments were carried out for the Building Materials Research Committee on the stability of walls from 2⅝ in. to 4½ in. thick. The tests were made to obtain helpful data for the large housing schemes in contemplation by the Government.

It was generally realized that the actual stability of unsupported walls only a few inches thick was very small, and that such walls in practice always received support either at the top or sides or both. It appeared, therefore, to the Committee that the most practical method of attacking the problem was to ascertain the breaking strength of typical walls when subjected to crushing loads and horizontal pressure applied to the walls while held at the top and bottom. This would correspond roughly to a wall having in it two door openings, the strength of a wall with no openings being somewhat greater.

It was found possible to secure the use of a hydraulic testing machine which was capable of crushing short walls 8 ft. 6 in. high, which is about the height between floors in a building of the cottage type. The investigation was conducted under the direction of Dr. Oscar Faber.

Tests were made on several commonly used materials, and each material was loaded to destruction in three ways:—

1. Small cubes, generally 6 or 9 in. square, were crushed in order to ascertain the strength of the material when not used as a thin structure.

2. Columns or pillars, 14 in. wide, from 2⅝ in. to 4½ in. thick and 8 ft. 6 in. high. These narrow, thin walls or pillars were crushed, and their relative strengths compared with that of the cubes.

3. Short lengths of wall, 3 ft. 6 in. wide, from 2⅝ in. to 4½ in. thick and 8 ft. 6 in. high, were subjected to a vertical load of about one ton per lineal foot of wall. While thus loaded, a horizontal pull was applied to the wall at the middle of its height until failure took place.

The principal facts brought out are the high relative resistance to crushing shown by the slender walls or pillars, and the weakness of lime mortar compared with Portland cement mortar when tested in this way. The crushing strength of walls laid up in Portland cement mortar varied from 67 to 83 per cent of the strength of the same material crushed in cubes. The lime mortar only showed 30 per cent. The high percentage strength is to some extent due to the care exercised in centering the column under test. The commentator states that strengths approaching these can be developed in practice, provided care is exercised in the bedding of joists, so that the load acts as nearly as possible through the center of the wall. It is also necessary that the wall should be absolutely vertical. Monolithic walls and walls composed of large units show a high resistance to the transverse loads as compared with walls formed from smaller units such as bricks. Walls of brick on edge, 2⅝ in. thick, laid up in cement mortar were found to be much stronger than walls 4½ in. thick laid up in lime mortar. The horizontal stress applied would naturally cause bending, to resist which requires a strong mortar.

In the review, freely quoted above, no mention is made of the amount of transverse load required to destroy any wall and nothing is said about the conclusions reached by the experimenters as to the value of such thin building walls. These data no doubt are given in the report which is sold by the Government for sixpence the copy. It requires highly skilled men to lay up such thin walls and the output per day per man decreases more rapidly than the decrease in wall thickness. No matter how successful such experiments may be, the saving in material will ordinarily be more than offset by increase in cost of labor as between a 4 in. and an 8 in. wall and no question exists as to which is the better.

XUM

A New Type of Garage

By Harold F. Blanchard

THE Nelson House Garage, Poughkeepsie, New York, presents an interesting departure from common practice in the design of public garages. The building is divided vertically into two sections, the floors being so arranged that those

Nelson House Garage, Poughkeepsie, N. Y.
Edward C. Smith, Architect

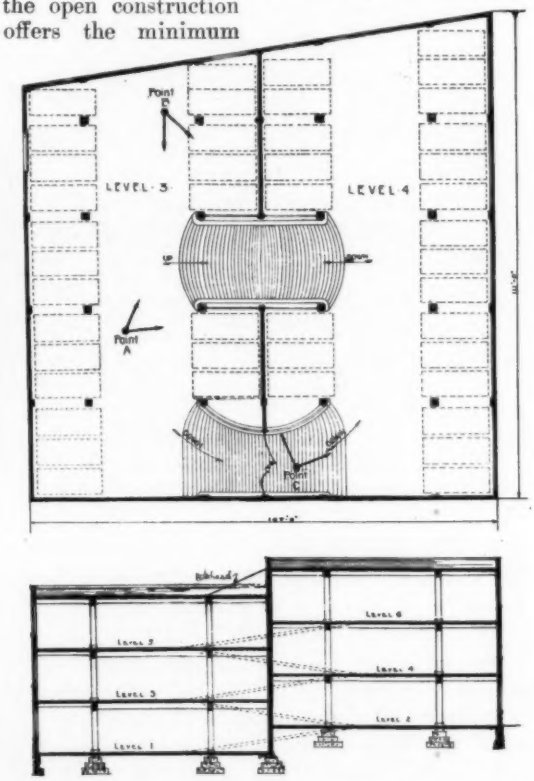
in one section are half a story higher than the floors in the other section. The arrangement is plainly shown in the accompanying section and in

Interior of garage. All floors alike. View from point B

the cut of the building the light colored concrete columns and spandrel beams are plainly outlined on the brick walls.

Before erecting the building a study was made of methods in use elsewhere and the advantages were all with the method finally adopted, in spite of the fact that it is patented. The claim is made that by staggering the floors the maximum convenience was obtained and the storage capacity was greater than it would have been with an elevator and no ramps.

The ramp with staggered floors occupies the same place on each floor, whereas the common form of ramp varies in location from floor to floor. The ramps are short, the grades easy, and the open construction offers the minimum



Plan and cross-section of the Nelson House Garage

obstruction to light. The idea is good and has been well worked out.

The basis of the design is car storage space. A floor plan was drawn for a one story garage occupying the lot. Outlines were drawn of cars in storage. On transparent material was drawn an elevator platform to the same scale. Superimposing this drawing over the inked drawing the space required for an elevator was immediately demonstrated in terms of stored cars. Another drawing was made for typical ramps and a similar procedure followed. A study was made to compare the cost of operating the elevator with the loss of revenue from car storage space absorbed by long ramps. The elevator was cheaper and might have been installed when the idea was advanced of making the building in two sections with staggered floors. The idea was simple and put into effect has proven to be practical. Reinforced concrete was chosen for the structural framing and floors because it is fireproof.

BRICK WALLS FOR RESIDENCES

A Discussion of Proposed Relaxation of Requirements as Influenced by a Loose Construction of the Term "Residence"

BY CHARLES E. WORTHINGTON
(Member N. F. P. A.)

The building industry is in the throes of a campaign of education. The moving cause is the organization by Secretary Hoover of a committee to prepare a national building code to standardize without hobbling progress all requirements capable of standardization. The present article, reprinted from The Quarterly, January 1922, of the National Fire Protection Association, discusses brick walls from the point of view of the specialist in fire protection. His reference to a publication issued by brick manufacturers guides the reader to sources of information of great value. The changing character of occupancy is an important factor entering into the consideration of many items dealt with in building codes. Does this not indicate that zoning laws and city planning are basic and really should precede, if they do not form part of, all regulations for the construction of buildings?—Editors.

THE appointment by Secretary Hoover of the Department of Commerce of the excellent committee to consider the standardization of Building Codes serves among other things to bring into prominence the plea of the Common Brick Manufacturers' Association for a modification of accepted brick wall construction, especially the requirement of twelve inch walls in certain cases.

This plea, brought forward by Architect William Carver in a carefully prepared and well illustrated booklet, is presented in a temperate and thoughtful manner; it represents at least their point of view fully and appears in the main to have anticipated and answered much possible criticism. This book although covering more fully the subject of the small folder recently mailed to members of the N. F. P. A. is a paper bound volume* too bulky and expensive to be distributed indiscriminately. It contains much valuable tabulated information and records of tests not previously brought together, although it is advertising matter in the sense that its design is the promotion of the brick making and building industries.

The advocacy of what the author terms the "Ideal Rolok Wall" is one of the main purposes. This method of construction consists in general of laying the brick on edge, breaking joints and laying each alternate brick through the wall, the surface of which thus presents the flat sides and ends successively in each course; this is an 8-inch wall providing a central air space.

This method of construction is not a novelty in some parts of Europe and is not unpleasing in appearance, but the determination of its merit is not the purpose of this discussion.

It is notable in this case that unlike the majority of such pleas, concession for special construction is asked only for a specific class of buildings. Questions of this nature have usually been settled by obtaining the concensus of opinion of a considerable number of persons reputed to be qualified to speak by reason of occupation, education or special experience (a sort of limited referendum), and the adoption of substantially the method favored by the majority, especially if the majority appears to be a decisive one. This method in this case is apparently impracticable from the fact that it is the prevailing concensus of opinion that is put on trial, and an accused cannot well be constituted judge and jury to try his own case.

Concensus here means in the main the voicing of fixed opinions, largely acquired from custom or inheritance, but difficult to change; opinions not always to be influenced by evidence and not always dependent upon other than superficial views. In such a case even an overwhelming majority may render a verdict not in accordance with fundamental facts and it might be far safer to call for thorough scientific tests and experiments, disregarding preconceived opinions, and relegate the decision mainly, if not entirely, to such competent and disinterested bodies as the United States Bureau of Standards and the Underwriters' Laboratories.

This determination affects not merely the brick makers but is vital in the matter of the housing shortage; one of our most pressing economic problems. The housing shortage must, however, be taken as a shortage of homes, a condition calling for the promptest practicable relief for individual home builders but not applicable to speculative or commercial building construction.

The plea of the Brick Manufacturers' Association as expressed by Mr. Carver is only for the sanction of eight inch exterior walls of hollow construction ("Ideal Rolok Construction") for small residences wherever located, not for buildings designed for mercantile uses or for apart-

* *Brick. How to Build and Estimate. Common Brick Manufacturers' Association of America, Cleveland, Ohio.*

ment houses. And since the maximum height of side walls for a moderate sized residence or two family tenement will never exceed twenty feet (nor the average of the gable walls twenty-five feet), and the length of such walls may be restricted to a maximum of about fifty feet without in the least impairing the purpose in view, there may be some features of this plea worthy of very careful if not favorable consideration.

OUR building codes in general appear to base wall thickness upon permissible floor load and fire hazard, stopping, however, at a floor load suitable for light mercantile use of 125 pounds per square foot, making no concessions for lighter loads, and drawing no distinction between the necessary thickness of fire walls and exterior walls not in contact with others.

It is notable as a factor in this discussion that Mr. Carver's book insists upon a twelve inch minimum for fire walls and party walls and upon solid brick construction for such, realizing the necessity of at least four inches of brick between the ends of joists or timbers. The need of this restriction should be evident although it does not seem to be considered at all in some codes where eight inch walls are permitted, no distinction being drawn between exterior walls and others. This should be stated here in justice to the proponents.

But, in event of fire the thrust which collapses a wall is not only determined by expansion, (height and length) but by the floor load within, and all other conditions being equal a wall may collapse under a load of 125 pounds that would safely pass the ordeal with fifty pounds. Hence while we will universally concede the twelve inch minimum for party or fire walls, it is by no means certain that this requirement should be uniform for loads under and above 125 pounds. That which is quite adequate for a residence of 2½ stories (20 feet high) may not suffice for a tenement wall of 3 stories or 30 feet.

Moreover sanitation requires isolation of residences to some extent for light and air. Where such are necessarily built in rows there is ample spacing front and rear, a condition not applying at all to mercantile construction and enforceable only to a limited degree in case of tenements (sometimes called apartment houses for euphony or to escape sanitary restrictions otherwise imposed.)

This spacing is important from an economic point of view, for in the so-called "congested districts" the cost of the land makes it imperative that the structure shall cover practically the entire area in order that financial return shall be adequate.

As an extreme example, suppose when the Equitable Building on Broadway, New York, burned, the State of New York had passed an act abrogating fire limit restrictions on this property and authorized the erection of wooden dwellings on the site, restricting, however, the size to 1500 sq. ft. of area, height to 2½ stories and providing a minimum spacing of 10 ft. on both sides to lot lines, 40 ft. in rear and a 50 ft. "set back." Does anyone dream that advantage of this permission would or could have been taken and buildings of very limited rental value erected upon land whose cost not only compels the utilization of every inch of area but demands vertical expansion of twenty or more stories in order to get rental spaces sufficient to return any interest on the investment?

This "congested district" argument is sometimes put forward by commercial or speculative interests with the object of increasing the permitted height limit to above 20 feet, and length to more than 50 feet; increases that would let in mercantile construction with its more than double floor loads, large areas and much greater volume of combustible material. As a matter of fact no one is at all likely to *desire* to build a residence in a congested mercantile district and if there should be such a person at occasional intervals financial considerations would restrain him.

PRESENT building conditions, reached by years of effort, cannot yet be called ideal. We have yet too much light brick construction, particularly in hotels and tenements ("apartment houses") of all classes, the permitted construction of "apartment houses" in particular having long been a common target for criticism. There appears to be, with the sole exception of small residences, no economic or other conditions that even remotely suggest "downward revision" of building requirements in any particular, although "upward revision" is desirable in many cases and particulars; and it may be added that no other class of buildings than residences of small height and area can be at present provided for by practicable legislation so as automatically to regulate the matter of fire protection.

* Before taking up the reverse of the shield a little consideration of the housing shortage may be desirable.

(*To be Continued*)

Annual Meeting A. S. T. M.

THE Twenty-fifth Annual Meeting of the American Society for Testing Materials will be held from June 26 to July 1, 1922, at Atlantic City, N. J., with headquarters at Chalfonte-Haddon Hall Hotel. Address C. L. Warwick, Secretary Treasurer, 1315 Spruce St., Philadelphia, Pa.

THE AMERICAN SPECIFICATION INSTITUTE

127 North Dearborn Street, Chicago, Ill.

BOARD OF GOVERNORS

RALPH W. YARDLEY
Chairman

GARDNER C. COUGHLEN
Acting Executive Secretary

FRANK A. RANDALL
Vice-Chairman

R. JARVIS GAUDY
Chairman, Advisory Committee

CHESTER L. POST

The American Architect and The Architectural Review *has gratuitously set apart this section for use by The American Specification Institute.*

The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimatcly identified with the field of the activities of The American Specification Institute.

Publishers, The American Architect and The Architectural Review.

Bulletins

THE preparation of Bulletin No. 6 was considered one of the important phases of the Institute activities and its importance is emphasized by reason of the great amount of discussion that is now being had respecting the Progress Report of the Joint Committee. As stated in the Preface to Bulletin No. 6, "The specification is based on and follows very closely the Progress Report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete." The major portion of the specification is not new but is a compilation of the best standard practice. It varies from the usual specification in the manner of proportioning the concrete. This proportioning is based on tables in "Quantities of Materials for Concrete and a Given Compressive Strength," of the Structural Materials Research Laboratory, Chicago. The measure of consistency, or workability upon which the proportions are based, is determined by the "slump test." Further, as stated in the "Preface," the attention of the membership is called to the arrangement of this tentative specification in parallel columns. The right-hand column consists of questions and explanatory notes that each member is requested to consider. These questions and notes are indicative, to some extent, of the admittedly incomplete paragraph to which each item refers. It is hoped that each member will give the Institute his experience and judgment on these points as well as on any others that he may select.

Considered as a part of Bulletin No. 6, although they bear separate bulletin numbers, will be found Bulletin No. 9, "Standard Specification for Reinforcing Steel," and Bulletin No. 10, "Standard Specification for Testing." The following comprises an outline of Bulletins No. 6, 9 and 10.

Standard Specifications for Concrete and Reinforced Concrete

(1) Types of Concrete
(2) Portions

Concrete Materials

(3) Portland Cement
(4) Fine Aggregate
(5) Grading
(6) Sieve Analysis
(7) Decantation Test
(8) Organic Impurities
(9) Coarse Aggregate
(10) Crushed Slag
(11) Grading
(12) Sieve Analysis
(13) Aggregate Storage
(14) Water

Proportioning Concrete

(15) Unit of Measure
(16) Method of Measuring
(17) Determination of Proportions
(18) Increase of Cement Ratio
(19) Change of Aggregate Ratios

Consistency of Concrete

(20) Consistency
(21) Compensation for Additional Cement
(22) Slump Tests

Test Specimens

(23) Compression Test Specimens
(24) Number of Specimens
(25) Moulds
(26) Mixing Machine
(27) Time of Mixing
(28) Retempering

XUM

Depositing Concrete

(29) Cleaning Mixer and Equipment
(30) Approval
(31) Handling
(32) Compacting
(33) Removal of Water
(34) Protection
(35) Cold Weather
(36) Depositing Continuously
(37) Bonding

Depositing Concrete Under Water

(38) General
(39) Proportions
(40) Coffer Dams
(41) Depositing Continuously
(42) Laitance

Forms

(43) General
(44) Design
(45) Fabrication
(46) Moldings
(47) Inspection of Forms
(48) Removal of Forms

Details of Construction

(49) Cleaning
(50) Bending
(51) Straightening
(52) Placing
(53) Offsets in Column Reinforcement
(54) Future Bonding
(55) Construction Joints
(56) Joints in Columns
(57) Joints in Floors
(58) Monolithic Construction
(59) Expansion Joints

Surface Finish

(60) General
(61) Top Surfaces Not Subject to Wear
(62) Wearing Surfaces
(63) Curing
(64) Concrete Stairs
(65) Roof Surfaces on Cinder Fill
(66) Expansion Joints in Roof Surfaces
(67) Terrazzo Finish
(68) Surfacing
(69) Preparation for Terrazzo

Standard Specification for Reinforcing Steel

(1) Bars
(2) Wire
(3) Area
(4) Testing Machine
(5) Column Spirals

Standard Specification for Testing

(1) Testing Laboratory
(2) Molds and Sieves
(3) Reports

Members are requested to send in other suggestions and criticisms on Bulletin No. 6 at their earliest convenience so that a revision of this Bulletin may be prepared at an early date.

Annual Winter Conference

The Annual Winter Conference was held on the Evening of February 10 at the Chicago Engineers' Club with a most gratifying attendance. A report of the proceedings will be published in these columns in the issue of March 1.

Advisory Committee

The Chairman of the Advisory Committee, R. J. Gaudy, has appointed the following members of The Institute as members of his Committee in addition to those announced previously:

Mr. Harry B. Wheelock, Birmingham, Ala.
Mr. Seymour H. Knight, Philadelphia, Pa.

Subject to later revision the Board of Governors has divided the country into districts, the center of each district being a city in which a member of the Advisory Committee is resident. This division is as follows:

Advisory Committee Districts

1. Boston
   - Maine
   - New Hampshire
   - Vermont
   - Massachusetts
   - Connecticut
   - Rhode Island
2. New York City
   - New York
   - New Jersey
3. Philadelphia
   - Eastern Half of Pennsylvania
   - Virginia
   - Maryland
   - Delaware
   - District of Columbia
4. Pittsburgh
   - Western Half of Pennsylvania
   - Western Virginia
   - Tennessee
   - Alabama
   - Mississippi
5. Detroit
   - Lower Michigan
   - Ohio
6. Chicago
   - Indiana
   - Illinois
   - Kentucky
   - Iowa
   - Nebraska
   - Colorado
   - Wyoming
   - Foreign
7. Minneapolis
   - Wisconsin
   - Minnesota
   - Upper Michigan
   - North Dakota
   - South Dakota
   - Montana
8. Saint Louis
   - Missouri
   - Arkansas
   - Louisiana
   - Kansas
   - Oklahoma
   - Texas
   - New Mexico
9. San Francisco
   - Washington
   - Idaho
   - Oregon
   - Utah
   - Nevada
   - California
   - Arizona
10. Birmingham
    - North Carolina
    - South Carolina
    - Georgia
    - Florida
11. Toronto
    - All Canada

New Members

The following new members have been elected.
Frank Mason Harris, Engineer, San Francisco.
Albert G. Hopkins, Architect, Boston.
Charles F. Plummer, Architect, Los Angeles.

XUM

MONUMENT OF COUNT UGO, LA BADIA, FLORENCE, ITALY

MINO DA FIESOLE

(For measured drawings see pages 172—173)